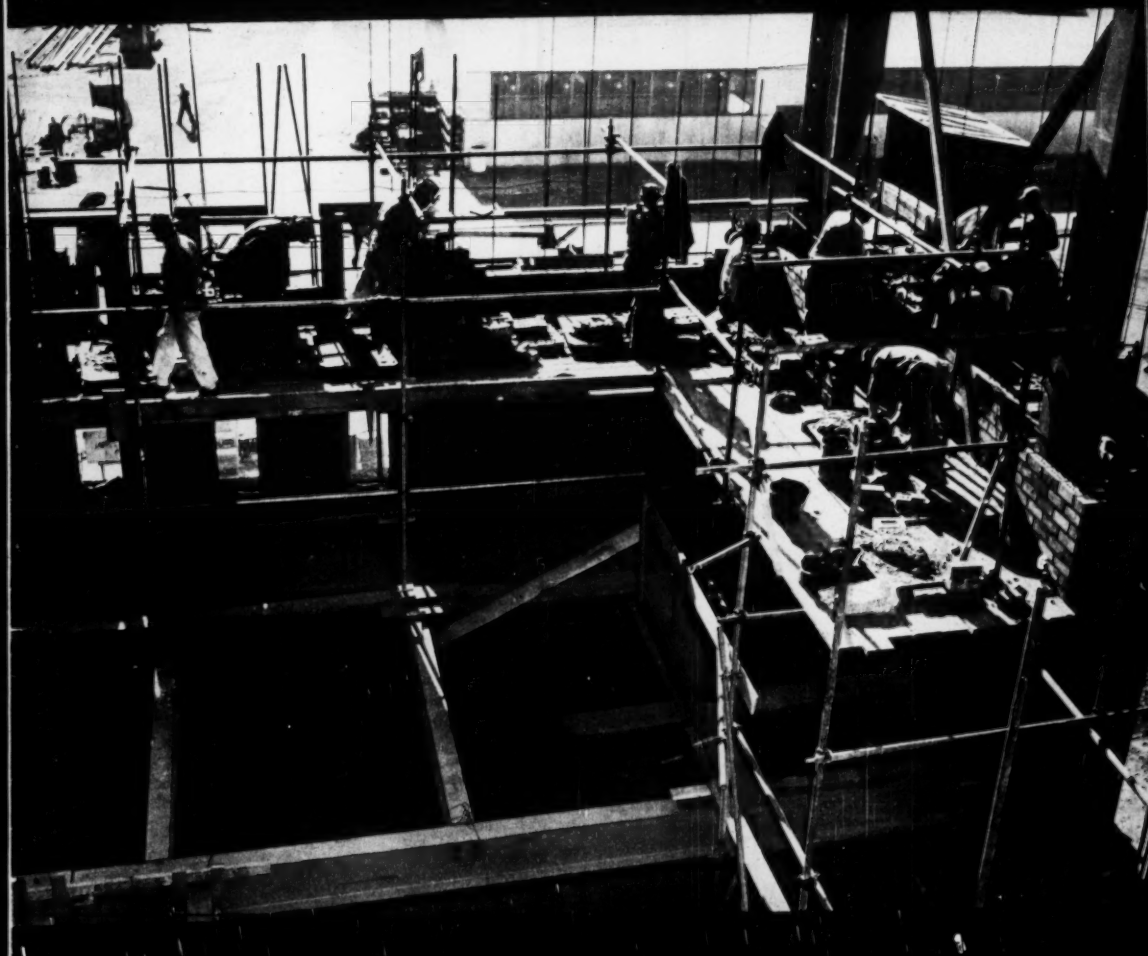
ENGINEERING NEWS-RECORD



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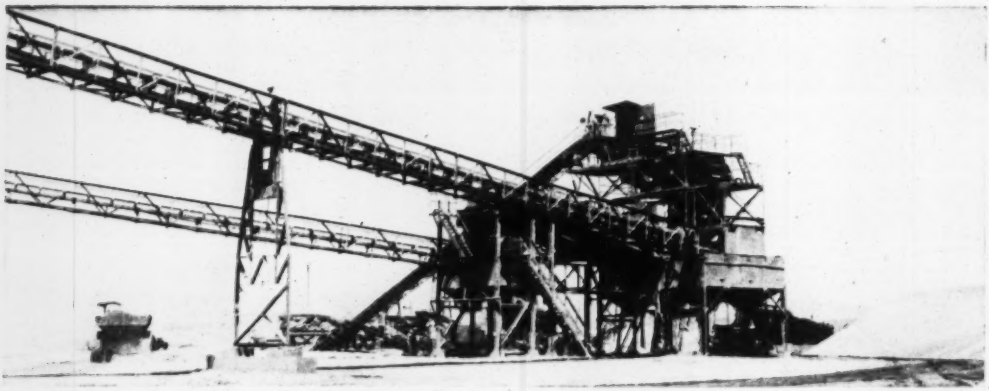

(A) Gravel is processed, and dirt and silt are screened and removed from sand in this washing and classifying plant. From here, the sand and gravel are carried by conveyors to storage piles. Extensive use is made of electric-powered conveyors to provide economical and reliable transportation. G-E motors and control are used throughout the portable arrangement.

ON JOB AFTER JOB

portable plant makes aggregate

... *Electrically*

G-E Equipment Powers 245-Tons-per-hour Plant to Process Aggregate Wherever It Is Needed.

This portable aggregate and batch plant has now been operated by the Western Contracting Corp. on four projects. Shown here set up near Newman, Calif., to supply aggregate for the Delta-Mendota irrigation canal, the plant has recently been moved to Yuma, Ariz., to do a similar job for the Welton-Mohawk canal. In 1946 the plant was moved 20 miles to the Newman site, set up, and put in operation in 10 days.

General Electric co-ordinated motors and control are used throughout. They give plant operators accurate control of the process, and have cut outages to a minimum. Motors range from 7½-hp G-E Pacific gear-motors driving conveyor belts to a 150-hp rock crusher motor. A 75-hp vertical motor drives a deepwell pump to supply the plant with water.

Electrified construction equipment can pay off for you, too. With co-ordinated use of G-E motors and control and G-E power distribution systems you will get safer, more flexible, and more efficient operation. *General Electric Company, Schenectady 5, N. Y.*

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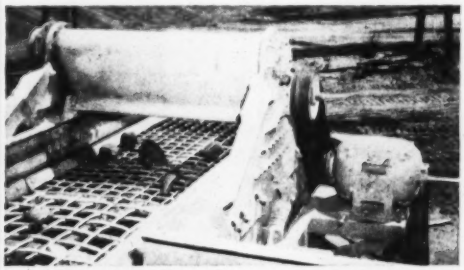
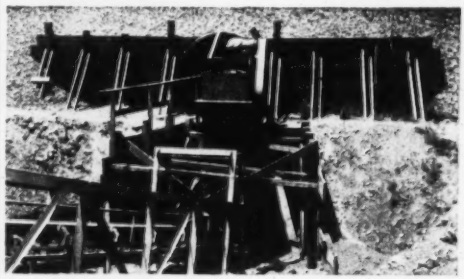
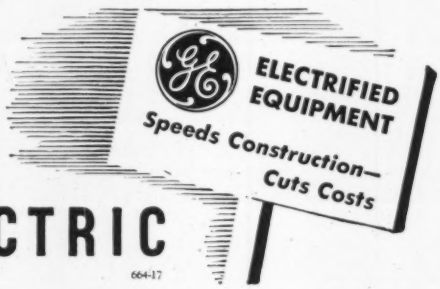


(B) Oversize rocks are removed by this scalping screen at the beginning of the conveyor system. A G-E 20-hp motor operates the screen. Maximum flow of material to the screen comes from an apron feeder operated by a G-E variable speed motor remotely controlled with a rheostat by the operator at the top of the washing plant.



(C) Gravel is drawn from the storage pile by a conveyor powered by a 10-hp G-E Pacific adjustable-speed gear-motor. This drive permits low adjustable speeds, easily changed by a pilot motor which is controlled from the top of the washing plant.



GENERAL ELECTRIC

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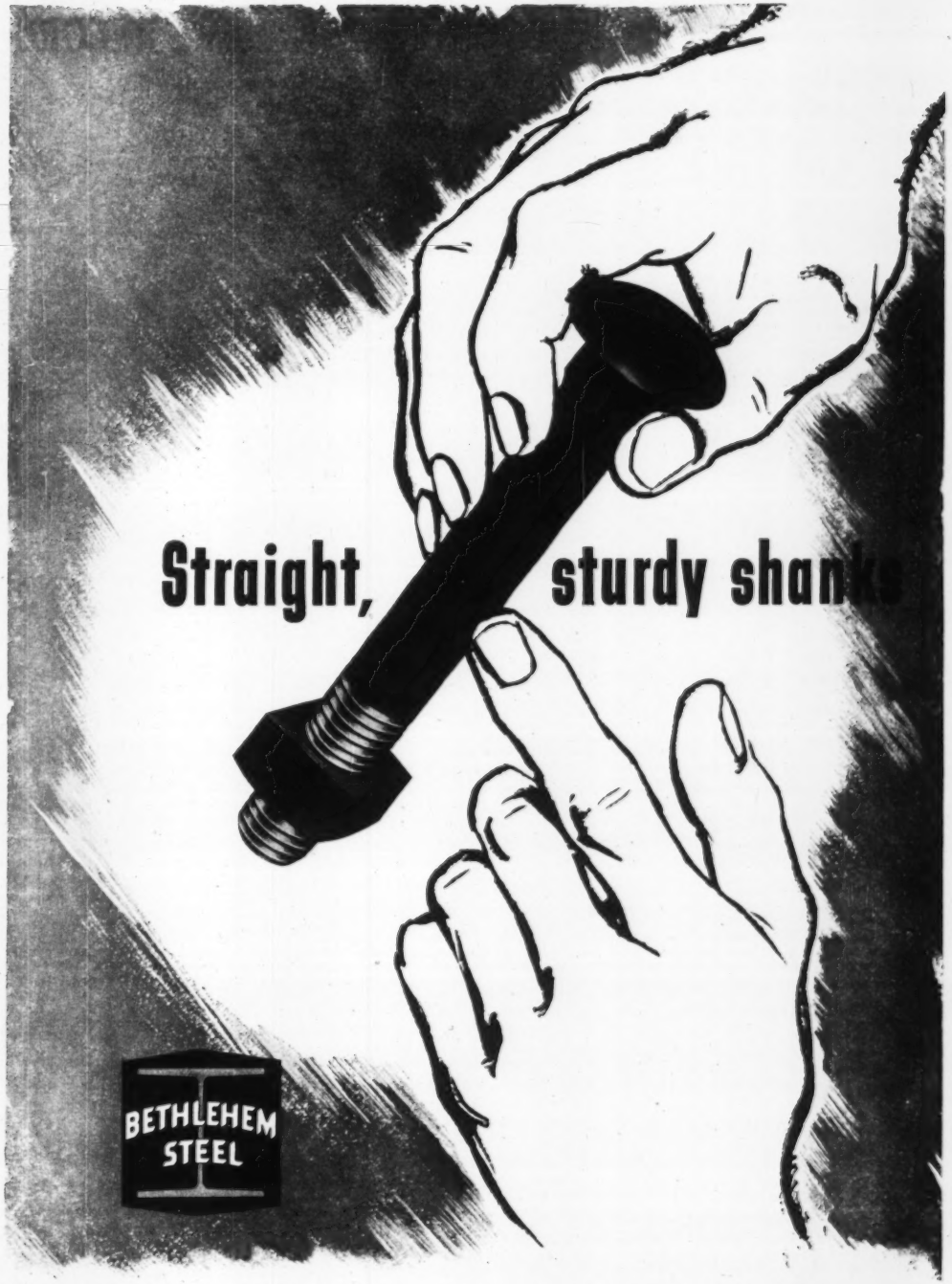

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 — NOVEMBER 29, 1951 — No. 22

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

A bricklayer answers the critics.....H. A. Gadsden 30
Trays nearly triple settling tank capacity.....H. G. Dresser 32
Maine tries concrete again..... 38
World's biggest aluminum plant..... 40
A new look at engineering employment..... 44
Perspective—Pittsburgh's new super airport..... 104

DEPARTMENTS

Construction Week	17	Men and Jobs	54
Construction Trend	19	Education, Research	57
Editorials	21	Meetings	59
News of the Week	23	Obituaries	61
Legal Decision	43	Labor	62
Reader Comment	47	Construction Business	65
Municipal	48	Unit Prices	67
International	50	Construction Reports	68

New Products 92

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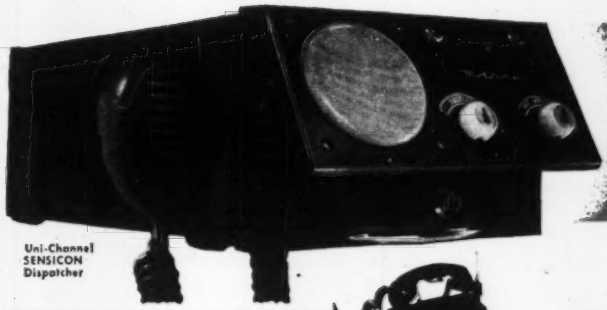

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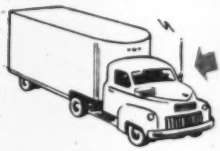

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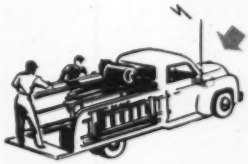

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The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

A Century in the Field

"We've both been land surveyors since 1901. Joe has been in every state in the Union, and I've hit all but Maine," Arthur Kidder of the famed cadastral engineering team of Kidder and Thoma was reminiscing at the American Society of Civil Engineers convention.

"Remember those early years out West for the General Land Office?" cut in Joseph Thoma. "We had some rough ones. Like that time in '05, laying out Government town sites on Untia Indian reservations in Northeast Utah. The Utes weren't too friendly. What did that one brave say? 'White man survey no good—cut up big Indian land into little pieces.' And then that sign: 'No Shooting Allowed—Surveyors and Other Animals in the Brush!'

"That job gave us early proof of the solar transit's value. With just a solar and a stadia rod, the two of us were making good time meandering the brushy banks of a river—both banks at once—to the amazement of a large party with regular transits, struggling with undergrowth and slippery banks on one side, and making plenty of mistakes. We finished our work quickly, and corrected theirs, too. That's one of the solar's biggest assets: checking on a precise traverse."

Land surveyors since 1901, Thoma and Kidder formerly worked for old Government Land Office.

Cadastral engineers Arthur Kidder (left) and Joe Thoma use four Gurley Telescopic Solar Transits.

"Joe, that reminds me of a few years ago in Washington," said Kidder, "when your friend had a misclosure on a 20-mile traverse up in Maryland and thought he would have to re-run the whole thing—at least three days' work with full party. You drove out with a Gurley Solar Transit, took azimuth readings at regular intervals, and found the error in three or four hours.

"We've run thousands and thousands and more thousands of miles, and believe a land surveyor can't afford to be without a Gurley Telescopic Solar Transit. We're finished before the ordinary party is set up. For four years now, we've had four Gurley solars. They have never needed adjustment, for the stability is built in."

"In our combined century in the field," concluded Joe Thoma, "we'd say the greatest progress in large-scale land surveying has been the development of the Gurley Telescopic Solar Transit. It will certainly aid in mapping the 200-million acres of public land still to be surveyed."

If you would like information on the Gurley Telescopic Solar Transit and other instruments, write for Bulletin 50. And send your story for a future "Surveyor's Notebook" page.

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Self-loaded D Tournapull picks up 5 pay yards of clay in 45 to 60 seconds.

for Texas contractor

"Nothing compares with the LeTourneau D Roadster Tournapull for moving dirt," said Contractor J. Ralph Fenton, when his rubber-tired Roadster finished a tough 17,000-yd. job on the Richardson & Ware Highway near Longview, Texas recently. Working right after heavy rain storms, the mobile, high-speed "D" placed an average of 85 pay yards of heavy, wet clay hourly on 800′ cycles.

In typical operation, it self-loaded 5 pay yards in about 50 seconds . . . completed the 800′ round trip over slick footing in 2.9 minutes . . . made 17 trips per 50-minute hour. Cycle time included 1 minute 15 seconds to haul 400′ . . . 10 seconds to spread . . . 40 seconds to make 90° turn and drive 400′ back to the cut.

"This D Roadster is fast and moves a lot of dirt," says Operator J. A. Bollenger, Rt. 2, Longview. "It's a man-saver and has brakes that really hold. I like its fingertip controls, too."

15 m.p.h. job-to-job

Owner Fenton also likes Tournapull's ability to drive under its own power from job-to-job. To reach the Richardson Highway site, the high-speed "D" traveled 5 miles through the city of Longview in 20 minutes.

Check into this 7-yd. Tournapull for yourself. Find out what its fast electric controls . . . 28 m.p.h. "go-anywhere" mobility . . . and self-loading versatility can do for you in your work. Your LeTourneau Distributor will be glad to show you job records of the "D" on both self-loading assignments and in pusher-fleet operation.

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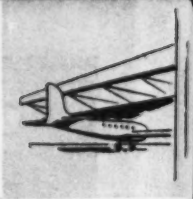

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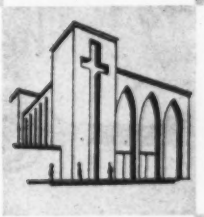

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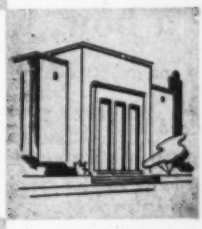

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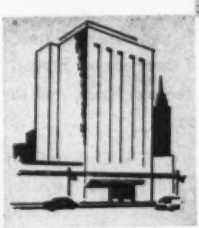

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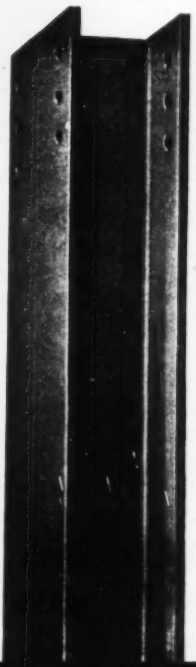

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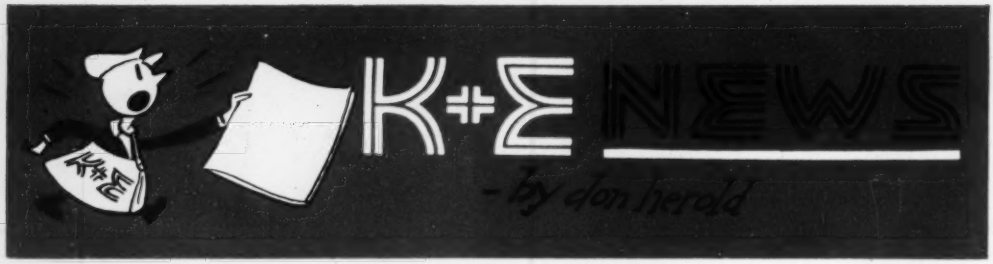
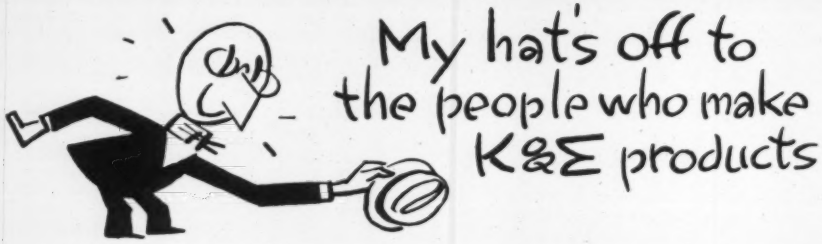




Take a bow, fellers!

Precision and quality don't grow on trees. But they grow.

At Keuffel & Esser precision and quality are almost a century plant. In other words they have been growing there in fertile soil for exactly 84 years. (K&E was founded in 1867.)

It's mostly a matter of people. Oh, there are machines, too, big ones, little ones—some of them almost human—but it takes people to imagine the machines, and to master them and supplement them.

Precision in the Air

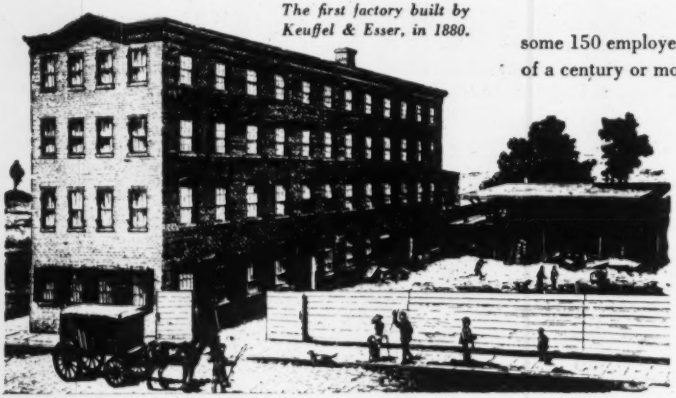
I've been talking about K&E products for a long, long time. Maybe it's time I talked a little about the people behind them.

I've just been through the K&E factory at Hoboken again. I wish you could have been along, because you, as an engineer, would have seen much more than I. But even I could sense the honest craftsmanship and the father-and-son tradition of precision and the zeal for quality in the air.

You just don't get to be that fine in one generation.

There are a number of K&E employees who have been around for about a half a century, and there are some 150 employees who have been there for a quarter of a century or more. This latter bunch of kids, as well as the young sprouts who have been there only 20 or 15 years, have inherited the K&E feeling for doing things the good, old, exciting, honest way.

But don't get the idea that there is any moss on K&E. An outfit that has thrived this long has to have the knack of remaining perennially young and of keeping ahead of the pack.



The first factory built by Keuffel & Esser, in 1880.

"Partners in Creating"

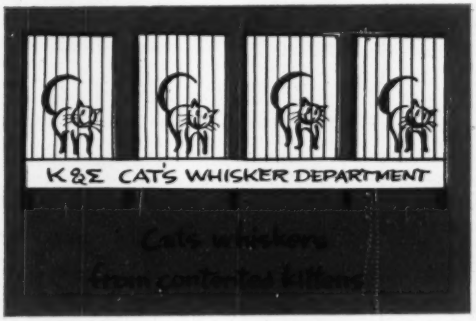
When K&E coined the phrase "Partners in Creating," they of course meant not themselves but their products. And it's true that K&E products have been in with engineers, scientists, draftsmen and architects on the

The K&E trade mark for decades, and the more modern one adopted in recent years.

creation of most of the big man-built wonders of the world for over 4/5 of a century.

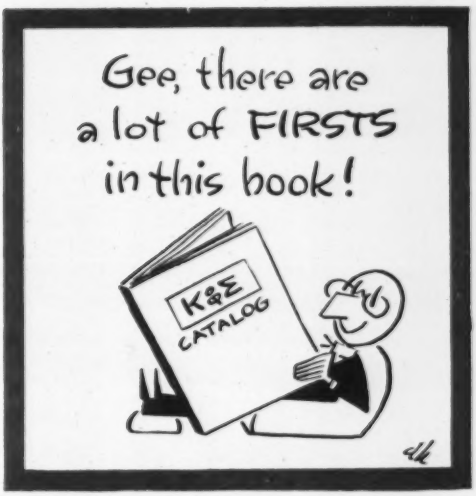
Zippy at 84

K&E have remained alert and alive, as is evidenced by their unending originality and inventiveness. They made America's first slide rules, as far back as 1891. And in both world wars, they did a big development job on optical equipment for our fighting men—on vital things such as periscopes, fire control instruments and height finders. The K&E catalog is full of "firsts"—some of them plenty recent, such as Wyteface* Measuring Tapes and Leroy† Lettering Equipment. No wonder it's the engineers' encyclopedia.



Factories within a Factory

K&E headquarters are a town within a town, many factories within a factory. In one area they're coating miles of papers and cloths. In another they're turning screws so tiny you feel like a hippopotamus if you try to pick one up. Here they're grinding optical lenses.



There they're putting graduations no bigger than a fly's kneecap on scales of some sort. Here they're doing fastidiously fine leather work. There they're reeling off steel measuring tapes by the mile.

K&E was in there sighting, in World Wars I and II

But wherever you go you are aware of the age-old passion for precision and quality. And I'm not the least bit sorry that today I haven't sold you a single K&E product. I've just tried a little bit to sell you on the people at K&E—and to get you to believe that you can safely make K&E products trusted partners in your own creative work.

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For 84 years K&E equipment and materials have been partners of the draftsman, engineer, and scientist in shaping the modern world.

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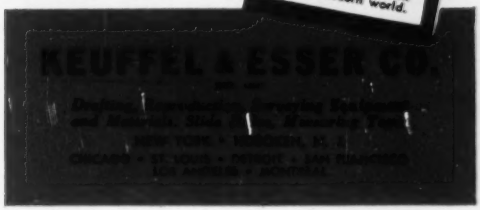

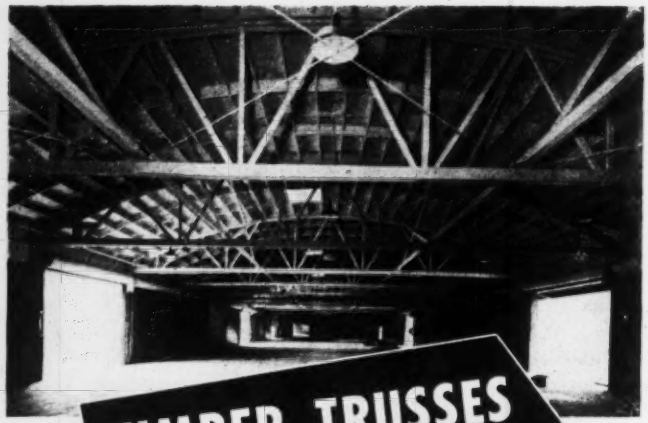

TIMBER TRUSSES
Tailored to Order

Illustrated above is the 60' x 760' Santa Fe freight house in Los Angeles with bowstring timber trusses designed and fabricated by Summerbell Roof Structures, Los Angeles.

Timber is available for the rush job today just as it was in the last emergency.

Warehouses, hangars, commercial buildings, factories and other structures using heavy timber construction, equipped completely with approved sprinkler protection, have shown a remarkable record of fire safety over many years.

Departing from the old-time idea of "size for strength," there has emerged from the lumber testing laboratories a new material — timber. The building profession now knows that, pound for pound, timber does as much work as other materials, and in its proper fields of use performs an equally satisfactory service, and generally at lower cost.

Specify timber—there's plenty of it, and timber fabricators in all sections of the country can help you now.

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ENR

NEWS BRIEFS

• **State-wide water policy**—The water resources committee of the North Carolina State Board of Conservation and Development has drawn up a long-range policy for water resources. It calls for promotion of river basin associations, collection of data on rivers, coordination of all agencies to support a multiple use of river basins, and a plan to cooperate with counties and municipalities in projects affecting sound and coastal waterways, and beach erosion.

• **Anti-vandalism drive**—Plagued by a loss from vandalism and theft estimated at $200,000 annually, Montgomery County builders at Dayton, Ohio, have started a drive to curb the offenses by offering $100 rewards for information about the acts. Reward posters are being put up at all projects of members of the Montgomery County Builders Association.

• **Annapolis overcrowded**—Plans are being drawn to relieve overcrowded conditions in the classrooms of the U. S. Naval Academy, where 3,790 midshipmen are studying in quarters built to accomodate only 2,500. Navy civil engineers have taken first steps to remodel academy structures, many of which are more than 50 years old.

• **Homing salmon**—Here is an experiment of interest to the constructors of hydroelectric dams. The first silver salmon released by the University of Washington at Seattle in 1940 have returned to the vat in which they were raised. They used a fish ladder which was not there when they left. The experiment was set up by the university's applied fisheries laboratory to study the migratory habits of fish. Silver salmon live in fresh water for 18 months, then travel to the sea, where they live until the fall of their third year, when they return to the waters in which they were reared. Fisheries interests strenuously object to the construction of hydroelectric dams which impede the return of the fish. Lauren R. Donaldson, laboratory director, figures the experiment will be a spectacular success if one-half of 1 per cent of the 26,000 fingerlings which he released come back to to the vat.

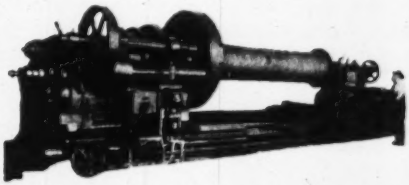
• **Wood waste fuel impracticable**—The Washington State Institute of Forest Products virtually has exploded the possibility that wood-waste could

(*Continued on page 14*)

POSEY'S STEEL PLATE STORY *in a Nutshell*

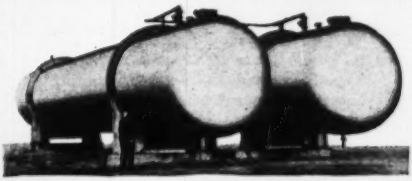
Posey's engineering department is staffed by men with long *practical* experience whose knowledge of shop requirements help end delays.

SKILLED ENGINEERING



Extensive, modernized plant permits Posey Iron to meet both "special" and standard requirements with economy and *speed*.

UP-TO-THE-MINUTE EQUIPMENT



Posey equipment is often delivered with *performance* guaranteed. All standard codes are met with liberal allowance for safety.

GUARANTEED PERFORMANCE

POSEY IRON WORKS, Inc.

STEEL PLATE DIVISION LANCASTER, PA.

TANKS .. STACKS... GENERAL STEEL PLATE CONSTRUCTION

Exhaustive ENGINE TESTS Prove

ALL 5 CLRC TESTS, standardized by the Co-ordinating Lubricants Research Committee, prove Shell Rotella Oil superior to the average of leading diesel lubricants . . . from every critical standpoint: parts-wear, corrosion resistance, ring-sticking and piston fouling.

Moreover, further tests, such as the Modified Lauson Lacquer Rating Test and Shell's own extremely severe Four Ball Test . . . all add proof upon proof that Shell Rotella Oil *does* keep engines clean longer . . . *does* extend time between overhauls . . . *does* reduce parts wear.

FLEET SERVICE confirms engine test results!

Read these authorized reports:

Yellow Cab Company, Nashville, Tenn., has 75 cabs, running 24 hours daily. They write: "We have always had trouble with sludge forming in the crankcase of our motors due to the constant start and stop driving . . . On some cabs this sludge completely blocked the passage of oil through the pump screen . . . bearings were burned out.

"After months of operation on Shell Rotella Oil we are glad to report that the *motors (thus far) examined have been found entirely clean, the pump screen as bright as brand new, and we have had no bearing trouble of any nature.*"

Creston Transfer Company, Grand Rapids, Michigan, haul uncrated furniture to the East Coast and southern cities. Creston began using Shell Rotella Oil nearly 4 years ago to correct a serious overhaul problem due to short valve life in their trailer truck engines. Shell Rotella Oil has increased valve life from 8,000 miles to better than 40,000 miles and greatly reduced all-around maintenance costs. Creston Transfer is now expanding with hauls to nearly every state. The proved lower maintenance through using Shell Rotella Oil is a basic part of Creston's expansion planning.

SHELL ROTELLA OIL . . . EXTENDS

You can EXTEND TIME between overhauls...

SHELL ROTELLA OIL slashes maintenance costs–Maintains engine efficiency

1. Positive ANTI-ACID ACTION

Shell Rotella Oil drastically reduces wear in the vital top-cylinder zone by counteracting the acid action of unburned fuel particles. This protection is extremely important in engines with intermittent loading.

2. Constant DISPERSANT ACTION

The excellent dispersant properties of Shell Rotella Oil permit it to dissolve contaminants and hold them in suspension until draining time. This prevents premature fouling.

3. Maintained Engine Efficiency

Is the direct result of reduced top-cylinder and ring-face wear. Moreover, new or reconditioned engines operating with Shell Rotella Oil show a welcome extension of the "low oil consumption" period because of this same reduced wear. The above gains, combined with freedom from fouling and a significant increase in valve life, enable you to extend time between engine overhauls.

FLEET OPERATORS!

Shell Rotella Oil is "Barrel One" in Shell's famous Three-Barrel Plan for fleet lubrication

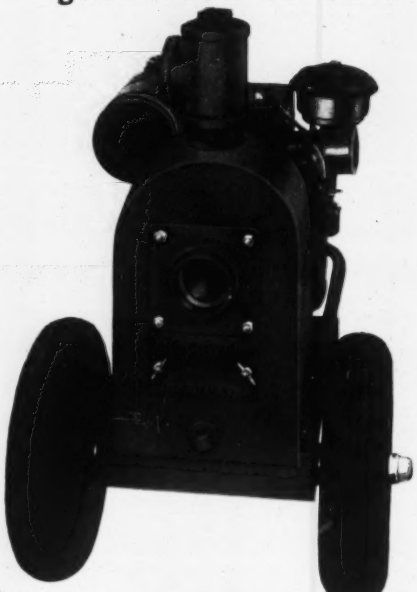
If you want to cut lubricant inventories to the bone . . . to realize savings in time, labor and materials . . . mail this coupon for "The Three-Barrel Plan." It's a practical booklet that shows how this revolutionary lubrication program can cut your maintenance costs.

NOW!
THE SHELL 3 BARREL PLAN
SHELL
SHELL OIL COMPANY,
50 West 50th Street, New York 20, N. Y.;
or 100 Bush Street, San Francisco 6, Cal.
Please send me a copy of The Three-Barrel Plan, along with other available information on Shell Rotella Oil.
Name
Address
City
State

TIME BETWEEN OVERHAULS!

Quick as a flash

this McGowan self-priming centrifugal pump gets down to work



Here's the best in the field—designed and built by McGOWAN, famous for pumps of all types since 1852.
This all welded steel pump is stronger, yet lighter than any you've seen. Features include automatic priming, non-clogging impeller, hardened wear plates, large access plates, tested and trouble-free shaft seals. Write today for bulletins.

FREE CATALOG on request to:
Dept. D., McGowan Pump Division
Leyman Mfg. Corp., Cincinnati, O.

SINCE 1852 M-GOWAN

division of LEYMAN MANUFACTURING CORPORATION

McGOWAN PUMP CO. CINCINNATI, OHIO

Briefs . . .

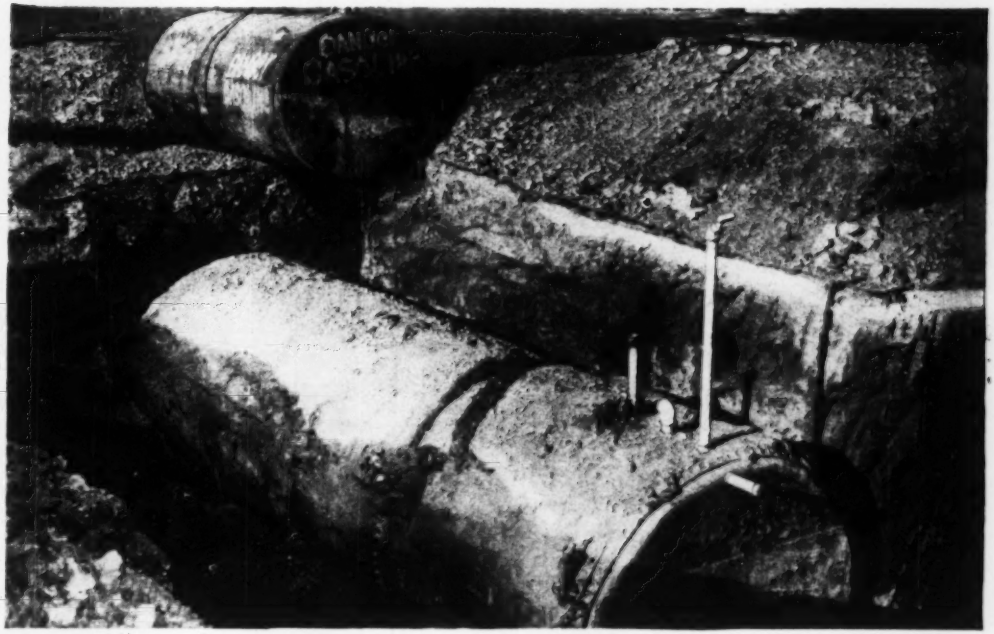
be used economically as fuel for steam plants to generate electric power. It says that even if all the sawdust and wood-waste in the state were collected in one place, the supply would be insufficient to run a steam plant of 300,000-kw capacity for more than two months. Such collection would be impracticable, the institute concludes.

• **Low-income housing**—At San Angelo, Tex., the T and L Development Co., without government subsidy, is carrying on a housing development for persons of low-income. The homebuyer must own a lot clear then the company builds a 3-room and bath house on it for $3000. The San Angelo Federal Saving and Loan Association loans the home-buyer the money to build. The loan runs ten years at 6 percent interest with a $300 down payment. Monthly payments are $46.40 the first three years and $31.40 afterwards. This includes principal, interest, taxes and insurance. The houses are well built, contain 550 sq ft of floor space, and are built on a reinforced concrete slab over which asphalt tile is laid and waxed. The front and back are frame, the sides are solid masonry, the roof is flat-decked, covered with 90-lb. slate with galvanized metal edging.

• **New Duplessis Bridge**—Plans for a new bridge, to replace the Duplessis Bridge over the St. Maurice River at Three Rivers, Que. which collapsed last Jan. 31, have been filed. They were drafted by the Quebec Public Works Department and call for a structure similar to the former bridge.

• **Pump water downhill**—Faced with mushrooming Navy facilities, expanding industry and just plain more people, San Diego, Calif., plans to increase its water supply 20 percent by pumping water downhill. The city's water comes from the San Vincente Reservoir by a gravity flow. To force more water down the system, the city fathers decided to install three centrifugal pumps. Powered by 200 hp. motors, they will boost the flow from 45 to 55 gpd.

• **Housewives' claims**—The California state board of control has approved the claim of a housewife who complained that State Division of Highways oil-spraying operations damaged clothes hung on her line to dry. The damages totaled $65.33. The board of control granted another housewife $4.19 because a stone propelled by a highway blasting operation tore a hole in a blanket she had drying on a clothesline.



buried in 1934

but as good as new in 1951

In 1934 these two gasoline storage tanks were buried in ground of lava type rock and sand with a high percentage of salt contamination. Early in 1951, as part of a building program, they were unearthed and found to be as good as new . . . *thanks to the coat of NO-OX-ID that had been applied 17 years before.*

This is the way to prevent corrosion. On steel structure, tanks, buildings, bridges, viaducts . . . wherever there is a threat of corrosion and loss of metal, there is the need for NO-OX-ID.

Write for your copy of a booklet that briefly introduces you to the money and material saving benefits of NO-OX-ID. Or, if you prefer, a Dearborn Engineer will gladly help you with your rust prevention problem.

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An introduction to the use and application of Dearborn NO-OX-ID Rust Preventives. Mail the coupon.

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☐ Please send copy of "Introduction to NO-OX-ID Rust Preventives."

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NO – OX – ID
IRON + = RUST

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Packs a payload dirt cheap!

Boss truck of tough hauling jobs is International.

This has been true for 19 straight years. One reason is—Internationals pack bigger payloads for less money.

You can prove it just by counting the number of Internationals used by people in your business. Their records show International Trucks cost less to own and operate.

Why is this true?

Because International Trucks are available in 115 basic models, thousands of variations—you don't have to buy more truck than you need. And you never get less truck than you need.

What about the driver?

A driver takes better care of a truck he likes. He likes the new Internationals. He likes the Comfo-Vision Cab—"the roomiest on the road." He enjoys new riding comfort, improved visibility, greater ease of handling. He enjoys so many features that make his job easier, it's no wonder he likes International Trucks.

No wonder, either, that he makes them pay off on the job. Teamed with a new International Truck he makes the effort that can keep your hauling costs *dirt cheap.* Why not see your International Truck Dealer or Branch and find out how you can keep your hauling costs down with Internationals.

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

INTERNATIONAL HARVESTER COMPANY • CHICAGO

INTERNATIONAL TRUCKS

"Standard of the Highway"

THE CONSTRUCTION WEEK

AID FOR SCHOOLS, HOSPITALS—Defense Production Administrator Manly Fleischmann this week told a joint Senate-House Defense Production Committee the DPA is dipping into its reserves for the first quarter of 1952 to increase allotments of steel for schools, hospitals, and highways. He announced an increase of 15,000 tons in allocation of carbon steel and structurals for schools, which he says will permit "starting construction of an additional 200 projects to the 300 already permitted, and continuation of some 1,400 projects under way. Allotments for hospitals have been boosted to 7,500 tons of carbon steel—including structurals—to provide for 50 new projects needed in defense areas, he said. Allotments for highways will be slightly eased to permit construction levels approximately matching those of 1949.

CHEMICAL ACTION—Expansion of the chemical industry is second only to steel, O. V. Tracy, director of the National Production Authority's Chemical Division stated last week. Applications for certificates of necessity have already passed a total in value of $2½ billion. Unofficial estimates he said have placed the industry's expansions at $4 billion. He cited the tremendous size of some individual expansion programs—50% in chlorine and caustic soda, and 25% in nitrogen facilities.

WHAT, NO STEEL?—Some people think there is a steel shortage. A. B. Homer, president of Bethlehem Steel Co. thinks differently. In a talk last week, he pointed out that steel is pouring from the mills at rates beyond what the steel-consuming industries have ever been able to use. The trouble, Mr. Homer says, is in the distribution system under which "instead of ordering steel, customers file 'requests'. Instead of consuming industries, we have 'claimant agencies'. Instead of distribution being shaped by natural economic factors, it is shaped by unrealistic demands, claimant agency pressures and over-all cutbacks."

WATCHDOG AT WORK—The congressional "watchdog" committee investigating electric power bottlenecks in the defense program should come up with this information: The main delay in electrical power expansion is lack of materials. This includes not only CMP allotments, but the difficulty of converting these allotments into materials and equipment. But the committee has the power to do something about it. With mobilization machinery sensitive to the desires of the committee, a strongly worded suggestion would do the trick.

THE OVERDUE IS DUE—Release of the long-awaited recommendations of "outside experts" on New York City's water-supply future is now imminent. A report, said to be dated July 1951, is still in custody of Luther Gulick who heads up a Mayor's Management Survey ordered by the now-Ambassador O'Dwyer when he was mayor. Questioned by ENR last week, Gulick said the report would be unwrapped "in the not too far distant future." Some expected it momentarily as this issue went to press. Among those most anxiously waiting: the four prominent consultants who wrote the report—Horner, Howson, Saville, and Wolman. (A fifth, Sam Morris, had to drop out early in the game.)

Contracts by type of work

	This Week	Cumulative 48 wks 1951	1950	% chge
Waterworks.	$8.0	$195.2	$204.5	−5
Sewerage ..	3.7	311.1	269.1	+16
Bridges ...	5.3	294.3	347.4	−15
Highways ..	17.0	1,098.4	1,165.9	−6
Earthwork, Waterways.	9.7	472.2	404.3	+17
Buildings:				
Public ...	15.2	1,971.0	1,552.2	+27
Housg., pub.	0.5	594.3	311.7	+91
Housg., priv.	49.2	1,880.6	2,984.8	−37
Commercial.	8.6	573.5	924.1	−38
Industrial..	54.2	3,864.6	1,533.5	+152
Unclassified.	8.0	1,521.0	1,229.4	+24
Total	**$179.4**	**$12,776.2**	**$10,926.9**	**+17**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

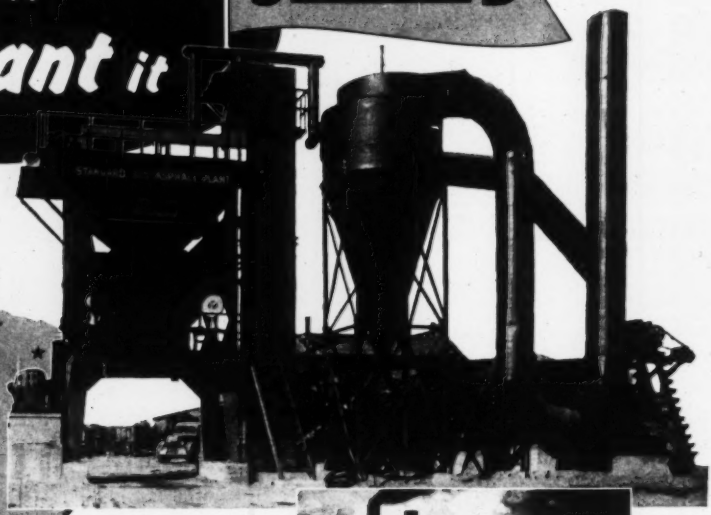
ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost.	Nov. '51	547.16	263.01	114.70
Bldg. Cost..	Nov. '51	404.50	218.66	114.98
Volume	Oct. '51	511	208	118

To see it is to want it

STANDARD

Stars indicate locations of new Standard plants

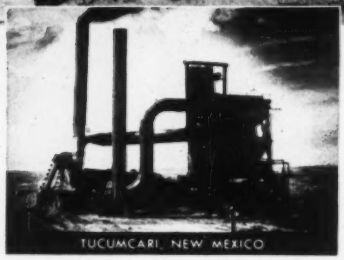


...that's why

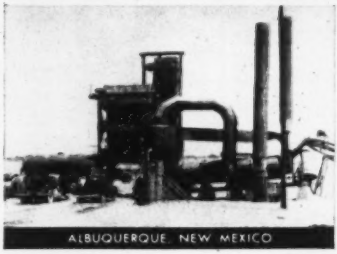
9 operators in a single Texas-New Mexico area all chose STANDARD within 6 months

The first of the Texas-New Mexico installations of the new STANDARD SM SERIES ASPHALT PLANT was in February, 1951, at Albuquerque, New Mexico. News travels fast in the great Southwest. Operators from the surrounding territory came, saw, and were convinced. In less than 6 months eight more STANDARD PLANTS had been purchased in the same area.

The reason is performance. To see the new STANDARD PLANT in action is to immediately appreciate what a big factor it is in reducing paving costs. It is the contractor's plant – less down-time, greater capacity, and smoother operation. Again STANDARD proves why STANDARD PLANTS have been preferred all over America for more than 30 years.



TUCUMCARI, NEW MEXICO



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Look at those advanced features

• Roller bearing equipped, twin-shaft mixer with patented sectionalized lining for easier, more economical replacement • Vertical hot elevator to cut friction and vibration • Fully dust sealed throughout • New easy motion control levers at operator's station to reduce fatigue factor • Individual electric motor drives • Manual or fully automatic weighing • Pressurized oil heating system • All parts easily accessible • Clean, straight line design for elimination of vibration • Completely synchronized flow • Unit built for easy erection, dismantling and transportation.

8 SIZES – 500 TO 6000 POUND BATCH CAPACITIES

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CONSTRUCTION TRENDS

NEW TAX MAY MEAN MONEY FOR CONSTRUCTION

The new Federal tax bill is bad news for mutual savings banks and savings and loan associations. Starting January 1, 1952, they will be subject to Federal corporate income taxes. Up until now they have been exempt.

But this bad news for banks may be good news for builders. It may mean more funds for financing construction in the future.

• **The Tax**—Here's how the tax will work. Savings banks figure their net income, subtracting business expenses and interest and dividends paid to shareholders and depositors. Then they get some extra deductions: repayments of loans made to them by the Federal government, and additions to the reserves they hold against possible losses. But all the rest of their income is subject to the regular 52 per cent corporate income tax.

A key provision of the law is the one on additions to reserves against losses. If a bank has low reserves, it can add just about all it wants—and thus escape paying any income tax. But if its surplus, plus undivided profits, is 12 per cent or more of its total deposits, the bank can add only a "reasonable" amount to reserves against losses.

What does all this mean for construction? The answer depends on what policy the savings institutions adopt when the tax goes into effect.

In general, there are two broad policies they can follow. One is to go after all the deductions they can get: by paying out most of their income to depositors and shareholders, by adding to reserves against losses as much as the law allows, and by paying off government loans.

This policy would not help construction. But it would not help the savings institutions much, either. Two of the alternatives—additions to reserves and repayment of Federal loans—are limited by the present size of reserves and by the amount banks owe to the government. And the third—that of paying out most earnings in dividends and interest—is not likely to be very popular with bankers. They want to keep at least some of their earnings in the business.

• **How Construction Benefits**—So a good many banks may try the other policy—increasing their earnings to cover the new tax.

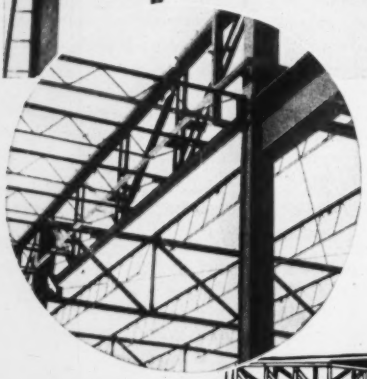
That's where construction comes in. Loans for financing construction carry some of the most attractive yields. Savings banks can get a higher return in interest if they switch more of their new lending to 4-5 per cent mortgages instead of, for instance, government bonds yielding well below 3 per cent. And both savings banks and savings and loan associations can benefit from buying state and municipal bonds—since the interest on them is exempt from Federal taxation. Either way, construction gains from an increase in money available for building.

• **The Outlook**—Savings banks and loan associations still have not reported which of these broad policies they will adopt. But the savings banks in particular will have to take one course or the other fairly soon. Their chances for getting deductions are severely limited because most of them already have reserves close to the 12 per cent specified in the law, and they do not owe large sums to the Federal government.

Many savings and loan associations, on the other hand, are in debt to the government, and many have maintained much lower reserves than is customary for mutual savings banks. They can avoid paying taxes for some years by paying off government loans and increasing their reserves.

But all these lenders will have to make the decision—sooner or later—either to increase their earnings or to increase payments to depositors and shareholders. When they do, it's likely that many will choose the policy of increasing their earnings in ways that add to the supply of funds for construction.

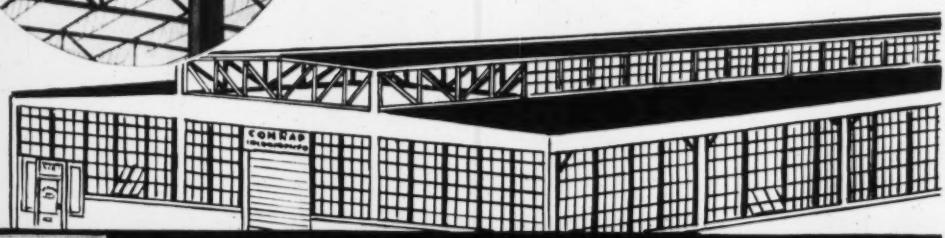
HOW TO POUR SUNSHINE ON AN INDUSTRIAL OPERATION



The Popular Hi-Lo Bay Design Engineered By Macomber For Industrial Plant Construction

Here's sunlight for sale—sunlight from all four sides of plant and monitor roof.

All parts are standardized products ready to be fabricated to your client's factory dimensions. Tell us out-to-out measurements and clear height under trusses. Single units or in series for wide plots. Write.



STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

CANTON, OHIO

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK

Congress and the Corps of Engineers

DURING THE PAST FEW MONTHS no less than three congressional committee attacks and a critical book have been directed against the civil works activities of the Corps of Engineers. To none of them have the Army Engineers seen fit to issue a public reply.

Silence in the face of these criticisms is not in the national interest, and is, moreover, damaging to the standing of the civil engineering profession. The fact that the criticisms are in many respects unfair and in others not factual makes the silent acceptance of them surprising as well as to be regretted.

If these criticisms are to go unanswered and a trend toward more such charges allowed to develop, it could eventually end in a separation of the Corps of Engineers from all civil works construction activities. Much as this might be welcomed in some quarters it would deprive the nation of an organization and a procedure for dealing with emergencies and for integrating military and civilian construction activities that has proved its value and could hardly be replaced.

Also, making no reply to charges that the Corps has cost the taxpayers $800 million on 182 flood control projects because of "insufficient engineering planning and estimating" opens up speculation on the part of laymen as to whether civil engineers can estimate construction costs properly. This is damaging not only to the capable men in the Corps, both officers and civilians, but to the whole profession as well.

AN ENTIRELY NEW ATTITUDE toward its relations with Congress would be a wholesome development in the Corps of Engineers—might, indeed, be welcomed by a majority of Congressmen. And greater independence in such matters as answering criticism is an obvious way to institute it.

An opportunity for asserting such independence is ready at hand in one of the current situations, for the Civil Functions Subcommittee of the House Appropriations Committee, which made the charge of "insufficient engineering," has refused to make public either its detailed report or the Chief of Engineers' reply. In the face of this impasse the Corps of Engineers should exercise enough control over its own documents to release them on its own say so and in its own defense.

Nor should this decision be affected by the fact that the charges against Corps procedures have been referred to the House Public Works Committee. Perhaps if the Public Works Committee takes its assignment seriously—and produces its results for all to see—it may then be possible to deduce what was proper criticism and what was just anti-Corps of Engineers propaganda. Yet even then these deductions must be made on the relative credence assigned to the conclusions of opposing Congressional factions. A forthright declaration by the Corps of Engineers itself on what is good and what needs improvement in its own procedures would do more to reassure the American taxpayer than any number of Congressional reports.

THERE ARE GOOD THINGS that the Corps of Engineers can point to, and there are some changes that it could well recommend. It could, for example, re-emphasize two items that were buried in one of its last year's reports: The $1 billion spent on flood control on the lower Mississippi has prevented flood damages totaling five times that amount; and the present benefit-cost ratio for all flood control projects now in operation averages 1.96 compared with an original estimate of 1.5.

The Engineers could also document their claim, frequently made privately, that they report unfavorably on more projects asked by Congressmen than they approve. And they could point out that despite the vast sums of money that have passed through their hands, no engineer officer has ever been accused of misappropriating any of these funds for his own benefit. The latter is rather a proud statement to be able to make in this day and age.

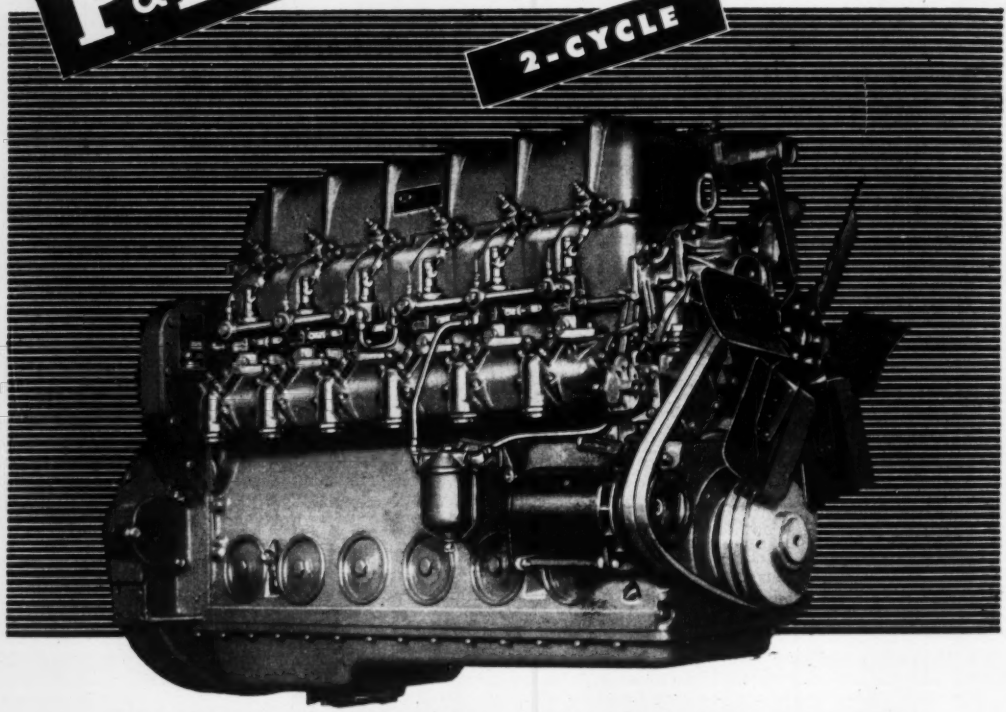
Recommendations for changes would be more difficult for the Army Engineers to make (but all the more effective for that reason) because they would frequently reflect on Congressional practices. Yet the need for the changes is plain. There should be an end to preliminary benefit-cost estimates based on preliminary and necessarily incomplete engineering and economic studies. As a cure, Congress should provide more money and time for these studies.

ON ITS PART the Corps should begin leaning over backward in fixing favorable ratios so long as these ratios are accepted as the prime proof of acceptability. If Congress wants to include "public necessity" or "social welfare" or "defense desirability" among the considerations that make a project worthwhile it can say so. But under the present rules of dollar benefits and dollar costs the Corps of Engineers should operate as the hard-boiled, realistic, unbiased, technical agency that it can easily be by virtue of its unique character and position. If it has to turn down three-quarters instead of only one-half of the proposed projects in order to be sound and realistic, that is the thing to do.

Were the Corps of Engineers thus to assert its independence and its devotion to the cause of efficient government and sound engineering it could speedily reverse a trend toward attacks that are whittling away its stature. Such a reversal would be good for the nation and for the cause of engineering generally.

P&H DIESEL ENGINES

2-CYCLE



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EVERY 30 SECONDS

That's normal operation for power shovels—the toughest assignment known for diesel engines. It's the service P&H Diesels were designed to take. Years of superior performance, attested by hundreds of users, prove that P&H Diesels can take *any* of your toughest jobs in stride. It's one reason wise users are standardizing on P&H Diesels. There are many other reasons worth learning. For literature, write Diesel Division, Harnischfeger Corporation, Crystal Lake, Illinois.

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ENGINEERING NEWS-RECORD

NOVEMBER 29, 1951 VOL. 147 NO. 22

Wilson shakes up housing program

Reorganizes agency set-up; names Foley to head home building activities as construction sags

Defense Mobilizer Charles E. Wilson moved last week to straighten out the badly muddled defense housing program.

He named Raymond M. Foley, administrator for the Federal Housing and Home Finance Agency, to be his assistant in charge of housing and community development. In his new position, Mr. Foley will head all defense housing activities—including rent controls.

On the surface, the move came as a rebuke to criticism from Rent Stabilizer Tighe E. Woods leveled at the government's "bureaucratic, cumbersome" procedures which are hampering imposition of rent controls in defense areas.

Below the surface, it shows that Wilson recognizes the whole defense housing program is badly in need of coordination and that something must definitely be done to bring the housing construction industry out of its slump.

• **Business off**—Home starts in October totaled 86,000, some 16% less than a year earlier. Competition among producers of building materials has become so fierce that price cutting and under-the-counter discounts have shoved prices down sharply in some classifications.

While all housing has declined, defense housing has not taken up the slack. The gap between the government-created cut-backs in non-defense housing, and the anticipated spurt in defense housing is getting wider.

Mr. Wilson's appointment of Mr. Foley to head all defense housing last week is a move to speed the bridging of that gap before it develops into a yawning disastrous chasm.

• **Revisions**—Almost at the same time Mr. Foley was assigned the new post, his HHFA issued a revised regulation further relaxing credit for programmed housing in critical defense areas.

It makes FHA-insured or VA-guaranteed mortgages eligible for advance commitments to purchase by the Federal National Mortgage Association, provided the commitments are made prior to Dec. 31, 1951. A lender may apply for commitments to purchase up to 100% of the mortgages rather than 50%, and need only to have filed for, and not necessarily have received, an insurance commitment. But all of the requests must be filed before Dec. 15.

This considerably loosens the money for an increase of defense housing.

• **Another spur**—As a further inducement to build, the HHFA has materially reduced the period when programmed housing must be held for rent or sale to eligible defense workers or military personnel.

For "sale" housing the "hold" period is reduced from five years to 60 days. After that it may be sold to a buyer who otherwise would be ineligible.

Rental housing must be held for rent for defense workers or military personnel for 30 days after completion and for 30 days after it subsequently becomes vacant. After the 30 days it may be rented to others. The period of this control has been reduced from five years to four years for structures containing three or more units, and two years for one- and two-family structures.

• **New areas**—The HHFA also announced last week suspension of credit restrictions and the programming of defense housing for the critical defense area of Allentown, Bethlehem, and Easton, in the state of Pennsylvania.

The program calls for 1,000 housing units, of which 620 will be for rent and 380 for sale. Of rental units, 250 are programmed for one-bedroom units, with a $55 monthly maximum rent; 350 as two-bedroom units, $65 maximum monthly rent, and 20 as three or more bedrooms, with $70 monthly maximum rent.

Of the sales units, the program calls for 300 two-bedroom units, with $8,500 maximum sales price; 80 units of three or more bedrooms, maximum sale price $9,500. These prices include dwelling, land and improvements. Excluded are incidental charges such as closing costs and brokerage fees or commissions.

Also recently designated as critical defense areas are: Camp Stewart, Ga.; Fort Meade, Laurel, Md.; Indiantown Gap, Pa.; and Bridgeport, Conn.

RAYMOND M. FOLEY, Housing and Home Finance Administrator, appointed to new post by Mobilizer Wilson.

• **Big picture**—These bring to a total of 92 the number of areas which have been designated critical defense housing areas. Of these designated areas, the HHFA has programmed housing for 78—a total of 53,440 housing units. These include 37,146 rental units and 16,294 sales units.

While the figures are beginning to look impressive, the number of actual housing starts under this program is small.

In many areas, the low price ceilings imposed over the houses have caused considerable hesitance among contractors to start building, or banks to start lending, unless buyers can be found in advance.

• **One case**—Near the Paducah, Ky., atomic energy plant, several projects are snarled over refusal by the FHA to insure mortgages on a number of units because the soil is not suitable for units with septic tanks.

Said one official: "We did insure 50 units on one tract and 23 on another, but had we known about the soil conditions, this approval probably would not have been given."

Other new developers in the area, with projects started, are now faced with the alternative of building sewage systems, or losing their investments.

Scarcity of construction machinery looms for contractors early next year

The contractor who needs a bulldozer, a power shovel, a heavy duty truck, a crane—or any of hundreds of different makes and models of construction equipment—is going to have a harder time finding one for reasonable delivery after the first of the next year.

Just like many contractors, construction machinery producers are facing cutbacks in production because of regulations under the National Production Authority. They have not been allotted enough critical materials to keep up peak output, and they are being hampered by red tape.

Major producers have informed ENGINEERING NEWS-RECORD that the shortage of materials is serious. Not only will it effect the volume of production, but it will be felt in supplies of parts where shortage already are beginning to be troublesome and costly. On a growing number of widely scattered projects, contractors are losing more and more on equipment downtime for lack of parts replacements.

• **Another factor**—In addition to the prospect of less production, contractors will see a large volume of what is produced siphoned into the armed forces. Probably close to 25% of the total output is going directly to the Army, Navy, and Air Force for troop use. This compares with a take of about 5% during normal times. (See accompanying table)

Contractors working on vital defense projects such as A-bomb plants and other war plant construction, are heavily favored in distribution of construction machines. A large percentage—perhaps 12%—of the output is channeled to meet their requirements. This is eight times the amount these projects would require under peace time conditions.

• **Cuts heavy**—Contractors who are building, rebuilding or repairing the nation's highway arteries will face tougher going. So will those engaged in construction of commercial buildings, public works, schools, hospitals, and housing.

Construction equipment for highway projects is one-third of what it normally would receive. For non-defense projects, available equipment is reduced to less than half of what it normally would receive.

• **Problems**—Here is what some key officials for large manufacturers of construction equipment say about the situation:

"Our main production problem is, of course, materials. Current production schedules of construction equipment are considerably below the indicated demand of the construction industry," one official says.

JULIEN R. STEELMAN, president of the Construction Industry Manufacturers Assn. is leading a drive for wider recognition of the essential role construction machinery plays in mobilization.

Another reports: "Our allotment of material is less than required to maintain operations at their present level. This has been true of each succeeding quarter in which allotments have been made. We have already been cut to the point that we cannot meet the demands of the (construction) industry provided the market is as high next year as it has been the past year."

Distribution of Construction Machinery

The following percentages, compiled by the Construction Industry Manufacturers Association, represent a careful estimate of distribution of products of the industry based on varying conditions. They represent a composite and do not specifically apply to any one segment of the industry.

Use	*Normal*	*Now*	*All-out War*
Military Combat—Covering all types of material purchased by the military.	5%	25%	75%
Military and Defense—Construction including Atomic Energy Commission plants, steel mill expansion, etc.	15	12	3
Mining and Quarrying	20	18	9
Agriculture	10	10	4
Logging	5	5	1
Petroleum—Including pipe line laying.	5	5	1
Industrial—Including materials handling.	5	5	2
Essential Highway	30	10	4
All other—Including miscellaneous construction, homes, housing schools, hospitals, commercial buildings, public works, etc.	23	10	1

How parts are being affected is indicated by another, who says: "Present allotments of critical materials are insufficient to permit us to meet the demand for new equipment and service parts."

• **Search on**—Even when allotments approach what is needed "finding homes for them at right prices is extremely difficult," one says. Another adds, "Even controlled materials in the quantities allotted are difficult to obtain."

One official observes: "Material allotments, as we all know, have been fine on paper but it does not produce the steel. We, like most other manufacturers, are forced to use premium steels and we have quite a staff of people whose job is solely the procurement of steel to keep our production going.

"We, of course, are hopeful that something can be done with the allotment situation so that we would have reasonable assurance that steel supply will be available at the right time to meet our production requirements."

• **Bottlenecks**—Below the general inadequacy of allotments, lurk a number of specific shortages which are bottlenecking construction of certain types of equipment. One producer summarizes it this way:

"Yes, there are bottlenecks. Today it's bearings; tomorrow it's forgings; the next day it's chain, and then it's wire. You clean up your bearing bottleneck and something else moves in to take its place."

Another cites "clutches and gears are our major bottlenecks, constantly threatening production along with plates and structurals."

"The main bottleneck is control of material," says one producer. "Despite these difficulties we do feel that we can continue to operate on something like a satisfactory basis. The construction industry is accustomed to overcoming obstacles."

• **Lesson**—One large manufacturer of construction equipment made this comment: "If our industry is to provide the production needed to take care of the critical needs of present high demand, it must be given greater consideration in the availability of controlled materials and critical components.

"This is very serious because any cut-back in production will be difficult if not impossible to quickly recover in the case of an all out military program. As you already know, power cranes and shovels are among the first and greatest needs of the military in any armament program, not to mention the greatly increased needs of defense supporting industries.

"We feel that the construction machinery industry should be given far

greater consideration than it has in the matter of material allotments."

• **Price factor**—Recent revisions of price controls under the Capehart Amendment are not expected to help the picture much. Most producers say they cannot see where the revisions will help them serve the construction industry any better.

One producer pointed out, however, that it will let him retain former doubtful profit items in his line. He explains it this way:

"The revisions of price controls enable a manufacturer of machinery to include certain costs that heretofore were eliminated from any price revisions. Naturally there would be quite a number of items in many manufacturer's lines that would be discontinued because they would be unprofitable.

"We have discontinued between 50 and 60 items because of newer items taking their place; but at the same time, some of them are on the very fringe of profit. If we were not allowed to include normal cuts which are now permissible under the Capehart Amendment, those items would be taken out of the line under the present price freeze."

Construction activity surges in Alabama

BIRMINGHAM—Alabama is having a construction boom. With engineering contracts 56% above last year in the South (ENR Nov. 8 p. 60), Alabama is reaping the benefits of an industrial invasion. Here are the major projects planned or underway:

Birmingham, long the industrial heart of Alabama, will continue to dominate with 31 new industries. But the increased industrial expansion will be felt in almost every section of the state.

• **Power**—The Alabama Power Co. announced plans to spend $100 million during the next three years and the largest part of the money is earmarked for expansion. Alabama's growing power facilities have played an important role in attracting industries to the state.

Power plants will eventually be located at Stevenson, Demopolis, two at Mobile and the Tennessee Valley Authority has announced Tuscumbia, in the northeast corner of the state, as the site of their new $47-million plant. The $30-million power plant under construction near Mobile is one specific instance of a power installation bringing outside industry to the area.

• **Variety**—New plants planned or already under construction will represent a wide variety of new industries for the state. Westinghouse and Appleton Electric Companies will build new plants. The iron and steel industry, represented by Tennessee Iron, Coal and Railroad Co., Woodward Iron Co. and Republic Steel Corp. plan extensive expansion. Chemical plants will locate in both the north and southwest sections of Alabama. A $10-million rayon plant is going up near Mobile and will go into operation late next year. Another $10-million plant slated for the manufacture of rayon-yarn is under construction at Childersburg. An electric tubing plant costing $6 million will be built by General Electric at Oxford in east Alabama.

• **Waterways**—Additional millions will be spent to develop the state's waterways. A new dam, now under construction, on the Warrior-Tombigbee River system will replace old and inefficient locks. Engineers have estimated $222 million will be needed for maintenance and improvement of existing facilities on the system within the next three years.

Other appropriations call for planning the new Howell Mills Shoals dam on the Coosa River near Pell City. The total cost of the dam is estimated at $90 million.

Military construction will also swell the state's building picture. The Armed Services Committee has recommended $64.7 million for a variety of military projects. The move will expand and reactivate military installations closed since World War II.

Other construction in the state embraces textile, rubber, paper and tin industries. The Southern Railway System is spending $9 million on the Ernest Norris Yard now under construction, and the port of Mobile will get a new $2-million grain elevator.

Highway inquiry ends

CLEVELAND—The investigation of misused state highway materials was cleared up this past week. The announcement was made by T. J. Kauer following the resignation of Thomas J. Keegan the department's personnel officer in Cleveland.

Kauer said Keegan admitted using state-owned cement in the foundation of his new home. Keegan was one of seven employees suspended about two weeks ago pending the investigation (ENR Nov. 15, p. 26). Kauer said the others have been cleared and have returned to work.

RAILROAD BRIDGE STARTS—Caissons for the first of five concrete piers to support the new $10-million Harlem River Bridge of the New York Central Railroad in New York City have been placed by Walsh Construction Co. The 2,227-ft structure will carry four tracks and will have a center lift span of 340 ft (ENR May 3, p. 25). It will be the fifth bridge to cross from Manhattan to Bronx at this point since the original wooden model built in 1841. It will replace a steel bridge now 54 years old crossing a few yards from the new site.

Legislature may be called

Bankers refuse to finance $310-million Ohio Turnpike on basis of legal flaw

COLUMBUS, O.—Bankers handed the Ohio Turnpike Commission a jolt last week by refusing to finance the $310-million project.

They told the commission that under provisions of the Ohio Turnpike Act, "it would be impossible to acquire possession of the necessary right-of-way without long and expensive delay."

Under the act, the Turnpike Commission can not obtain possession of the right-of-way until cash has actually been paid for the property involved. In case of objection by a property owner on price, it may not be able to take possession until the dispute has gone through to the highest Ohio court.

(By contrast, the State Highway Department under provisions of the constitution can take possession of the right-of-way upon deposit of cash for payment after securing a jury verdict.)

• **What now?**—Aside from this objection, the financial adviser representing a group of interested investment bankers said everything else appears in order.

Analyses of the J. E. Greiner Co. engineering report, and the preliminary studies of Parsons, Brinckerhoff, Hall and Macdonald convinced the bankers that the project would be a feasible project and a sound financial undertaking—except for the legal flaw in the act.

To eliminate this flaw, however, may require a special session of the Ohio legislature.

• **Meetings**—James W. Shocknessy, chairman, called a meeting of the Turnpike Commission for Wednesday to hear a report from Frank Dunbar, Jr., commission attorney, and Henry Crawford, bond counsel, on how the bankers' objections could be met.

Gov. Frank J. Lausche called another meeting the following day of political leaders; representatives of state, county and municipal agencies; and representatives of business, agriculture, labor, and others interested for the following day.

Out of the two meetings, a program to correct the Turnpike Act is expected to emerge.

Kansas City planners map roadways system

KANSAS CITY—A roadways plan expected to take thirty years to build and to cost the state of Missouri at least $129,750,000 is in a report just completed by Kansas City, Mo., planning engineers under a contract with the Missouri highway department.

The projects listed in the report include 35 miles of projects, in which are twelve freeways, two trafficways and a section of interchanges. The bulk are in Missouri, but the entire plan is a metropolitan project idea which includes parts in Kansas City, Kansas (Wyandotte County) and in Johnson County, Kansas.

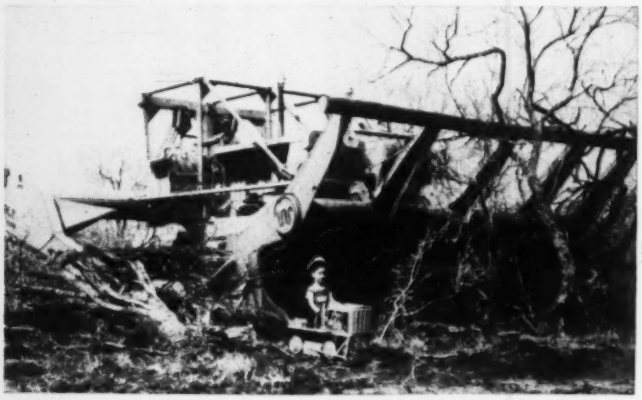
The projects extend into three Missouri counties—Jackson and Clay (in which Kansas City, Mo., is located) and in Platte.

• **In stages**—Already built, but part of the plan, is the Southwest trafficway in Kansas City, Mo. The Southwest trafficway unit cost more than $7 million, leaving approximately $122 million yet to be expended on the roadways developments in the coming three decades.

It has been suggested that the projects be built in four stages. Detailed estimates have been made on each stage, on the assumption there would not be adequate money available to build the entire project as a complete unit.

As for the $122 million which is earmarked for the remaining part of the road system, it would be financed by a combination of federal, state and city funds. The division is presumed to be similar to that used in construction of Southwest trafficway viaduct, in which the federal, state and city governments shared the right-of-way costs, and the federal and state governments handled the construction work.

Under present laws, only about half the $122 million amount is in sight over the 30-year period, which means the other half must come from other sources.



BIG BROTHER—Contrasting with the youngster playing at land clearance with his toy tractor, is a new 52-ton juggernaut which knocks down and root plows an average of four acres an hour. Powered by a twin "Cat" D8 tractor, the machine has a seven-ton funnel dozer in front, 3-ft ground clearance, and a six-ton plow in the rear which travels 16 in. below ground surface cutting stumps and roots below the bud ring. It is shown here at work on King Ranch, Tex.

Asphalt wins again on Oklahoma turnpike

TULSA—Another 28.4 miles of the Oklahoma City-Tulsa toll superhighway will be paved with asphaltic concrete.

The contract awarded last week by the Oklahoma State Turnpike Authority marks another victory for asphaltic concrete over Portland Cement in the materials battle over surfacing the highway.

Total cost of paving this section is $3.2 million, about $250,000 over the estimated cost. The aggregate of low bids on concrete for the stretch was $3.6 million, $396,090 above the combined low bids made on asphaltic concrete.

The 28 miles involved in the new letting are from the Oklahoma City terminus northeast. At a previous letting on Oct. 1, the authority awarded contracts for asphaltic concrete paving to extend 27 miles from the Tulsa end.

Critical shortage of cement snarls concrete block industry in Florida

JACKSONVILLE—Florida concrete block plants are shutting down or operating on a week-by-week basis because of a shortage of in-area cement and failure of the Office of Price Stabilization to allow them to adjust prices to cover freight costs on out-of-area cement.

A supplementary OPS regulation which was issued Sept. 27 has protected ready-mixed consumers to a large extent. It allows a price ceiling adjustment to reflect the actual out-of-pocket additional cost in purchase of out-of-area cement. The regulation specifically exempts concrete block manufacturers from the permissive authority, however.

Those companies staying in business, and some of the large contractors, are depending on out-of-area mills to supply them. Normally, the Florida Portland Cement mill at Tampa supplies west and south Florida users. North Florida consumers usually get cement from Penn-Dixie Cement Company at Clinchfield, Ga., or the Atlas plant in Birmingham. These three mills are now unable to meet the demand for civilian uses and defense work in the area.

Florida's Senator Spessard L. Holland announced that the OPS will issue new ceiling price regulations to relieve the price strain, but no new ceilings have been announced yet.

• **Some relief**—Mid-western cement mills are contacting Florida consumers and a total of 127,000 barrels is reported being diverted from out-of-area mills to Florida. Another 40,000 barrels originally allotted to defense work in Mississippi, Alabama and Georgia is being sent into Florida, but it has not eased the pressure on the Florida consumers.

During the fall of 1950, the Wolfson enterprises at Jacksonville imported European cement to relieve a shortage in the state. About 100,000 barrels were imported into the state last summer, but the prospective consumers refused to pay the asking price and there is little expectation that imports will be resumed in quantity. A small amount is being shipped into Miami.

The Penn-Dixie and Atlas plants are reported supplying about 225,000 barrels required for the Navy's master jet airfield construction at Cecil Field outside Jacksonville. Merritt-Chapman and Scott Corp. is buying cement direct for about 100,000 barrels needed for the Arlington Bridge at Jacksonville. Other large contractors are buying direct rather than depending upon normal local sources.

• **Selection**—Aside from the concrete block plants, the only firms suffering are those which have not had standing connections with a cement producing mill, according to Jacksonville suppliers. Steady customers are getting first choice on the in-area supply.

One-day delays have been encountered on the Arlington and Gilmore Bridge projects at Jacksonville but the contractors, Merritt-Chapman and Scott and Diamond Construction Co., believe they have their supply problem licked now.

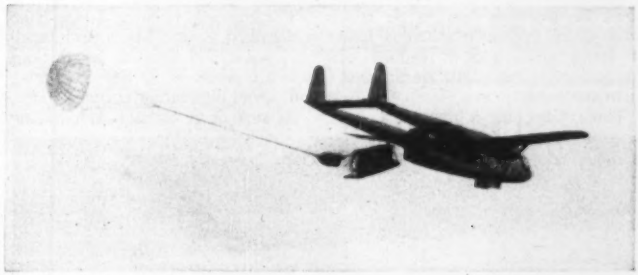
To relieve the shortage in the future, Leigh Portland Cement is erecting a 1.5-million barrel mill at Bunnell, Fla., to utilize large coquina deposits in that area. The plant will be open in from 12 to 18 months. Florida Portland Cement is adding a 1.5-million barrel unit which is scheduled to start production next May.

New turnpike section to open in Pennsylvania

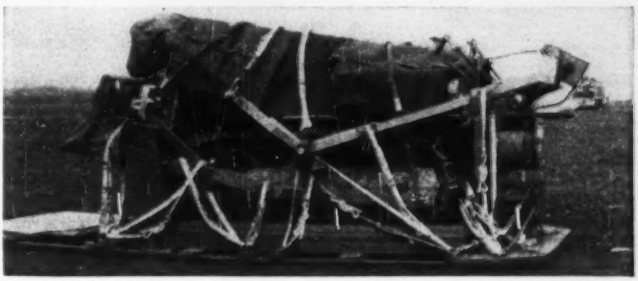
PITTSBURGH—The 67-mile western extension of the Pennsylvania Turnpike from Irwin to the Ohio border near Petersburg, Ohio, was formally dedicated by state officials this week as tape was cut at the western end.

When the extension is opened to traffic in December, it will permit motorists and commercial users to travel 327 miles without interruption from Valley Forge in the East to Ohio—nearly one-eighth of the coast-to-coast mileage of the United States. Toll for this distance in a car will be $3.25, approximately a cent a mile.

Bulldozer floats through the air



BIG LOAD GOING DOWN—U. S. Air Force leaders called it a significant step, after the experiments at Wright Field, Dayton, Ohio, confirm that a 9½-ton bulldozer could be dropped intact from a cargo plane. The bulldozer is said to be the heaviest load ever to be dropped by air. Previously, because of the difficulty in dropping such a heavy piece of equipment, Army Engineers have had to disassemble such machines, then reassemble them on arrival in forward areas. For this experiment, the dozer was mounted on a platform and a series of crash frames were built around it to crumple consecutively upon impact and absorb the landing shock. The clutch housing and other vulnerable points were protected by fiber and canvas pads. The platform and dozer were then loaded as a unit. As the plane neared the drop zone, crewmen removed tie-down chains, pulled a safety pin on a pilot parachute. Then a shot bag was thrown from the aircraft, which pulled out the extraction chute, which in turn dragged out the platform in a matter of seconds. Six main parachutes then took over the job of lowering the dozer to earth.



Leads to truce talk sites

Engineers bridge raging Imjin River nine times during Korean campaign

WITH EIGHTH ARMY IN KOREA—The in-again out-again Imjin River bridge leading to Panmunjom is in again, for the ninth time in less than a year, and harried Engineers are crossing their pontoons that frustrating precedent will not shatter their latest effort.

Thus far Army spokesman conservatively estimate more than one million dollars has been literally sunk into bridging the Imjin gap of the main Seoul-Kaesong "highway."

Bridge Number Nine, completed in mid-October, took the 14th Engineer Combat Battalion a minimum record of five hours to install, but only after I Corps' 58th Treadway Bridge Company had taken six days to conquer the sandy Imjin banks with abutments and approaches.

• **Rugged bed**—The I Corps public information office reported that hundreds of sandbags had to be laid, three deep, over a treacherous base of Imjin sand, and a roadbed of quarried rock and earth spread over them cautiously.

Three tides, on a river that has risen as high as 32 feet in a matter of hours, inundated and threatened the roadbed during its construction.

Even after the bed was laid, the 58th was obliged to follow the unorthodox precedure of inflating pneumatic floats away from the operation and carrying them to it athwart trucks, in order to beat the problems raised by the Imjin's sandy approach.

• **Called wild**—1st Lt. Russell D. Henry, Berkeley Springs, W. Va., a veteran Engineer with more than eight years of military bridge-building behind him, termed the Imjin River the "wildest I've ever seen." Henry is assistant operations officer of the 14th Engineers, a battalion of the Army-level 2nd Engineer Group, and has participated in the con- and/or de-struction of Bridges Number One and Two and Five through Nine.

The currently reigning Bridge Nine is classified as an "M-2" steel treadway, some 365 feet in length, can hold a capacity of 50 tons at a time, and carries alternating one-way traffic.

As such it is certainly not among the most imposing bridges of the world, but with the responsibility of daily ferrying the United Nations staff to the truce talks at Panmunjom it is focused in the spotlight of international interest.

• **Temperament** — Its earliest forebears, Bridges One and Two, shared none of its spectacular interest by the allied press but nevertheless were militarily vital. These were the temperamental 1950 patriarchs of the later and equally tempermental generations.

Bridge One, an "aluminum bulk" type erected in the early fall of 1950, carried the victorious United Nations forces in the "Home-for-Christmas" offensive to Pyongyang and points north.

It valiantly swayed, too, under the load of the subsequent withdrawal after the Chinese entry until, on December 10, Bridge One fell victim to the Imjin's rising ice flow.

• **Dismantled**—The 84th Engineers immediately replaced One with Bridge Two. Twenty hours later, with the last allied troops safely on the south bank, Number Two met a hasty death as the 84th dismantled the aluminum pontoons to bring them to more secure environs.

From Two's demise until Three's creation, by I Corps' Engineers in June, 1951, the Imjin was nothing more than a distasteful memory for the United Nations and, undoubtedly, with the added handicap of Fifth Air Force interdiction, a more than troublesome factor to the Communist enemy.

Bridge Three lasted exactly one month. It was the first to be floated on pneumatic, rather than aluminum pontoons, and the first to fall victim to a rain-swelled Imjin.

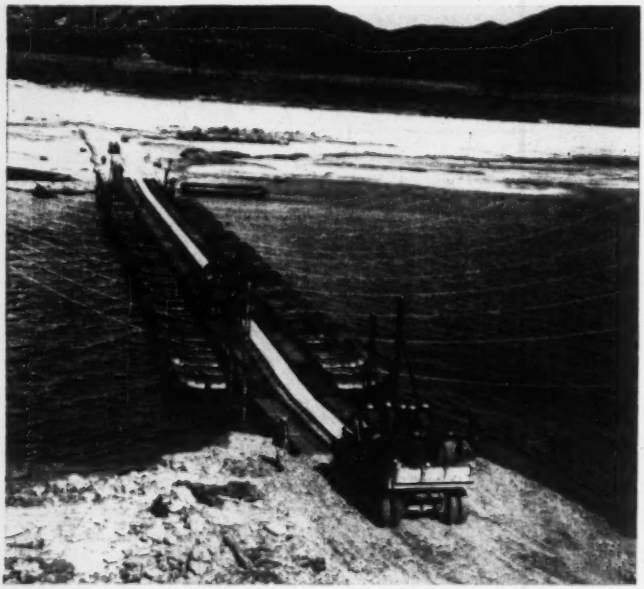
• **Truce talks**—As a replacement, Bridge Four, completed by I Corps at 8 p. m. July 3, lasted longer than any of its less sturdy, or less fortunate, kin. With the formal opening of truce negotiations on July 10 it also gave lengthier service toward a possible settlement of the United Nations' first hot war than any of its successors.

The 84th Engineers re-entered the operation August 13 with the maintenance of a ferry service until Bridge Five was completed August 16.

Floods took care of Five on the following night.

Number Six, put in by the undaunted Engineers on August 19, lasted two days, when, on the twenty-first, it was yanked from the repetitious peril of rising tides.

• **Still at large**—Bridges Seven and Eight, appearing and vanishing by August 31, were not so fortunate. Unlucky Number Seven is still pre-



COST OVER $1 MILLION—Lead vehicles of an allied troop convoy across the ninth Imjin River bridge to cross the river at this location in less than a year. Cost to the Army in material and man hours is estimated over $1 million for the nine. It is a vital link used by United Nations staff members en route to the armistice negotiations at Panmunjom. (Official U. S. Army photo).

sumed to be at large on the Yellow Sea. What debris that was left of flood-humbled Number Eight was picked up at Inchon while en route to a similar fate.

With the prolonged break in the truce talks the Engineers thankfully washed their hands of bridging the Imjin for the next six weeks. Whenever United Nations liaison officers went to Kaesong or Panmunjom they traveled by helicopter or crossed the tempestuous Imjin courtesy of Army ducks.

• **Last of line**—With the resumption of armistice negotiations, the bridge need was once again there, and so, once again, were the Engineers.

The result: Bridge One's great great great great great grandson, Bridge Nine.

With the rainy season, for 1951 at least, but a sodden memory and the yo-yoing lines presently stabilized, the chances are that Bridge Nine will not go the way of all its forebears' metallic flesh.

For a while at least.

Canada, U.S. agree on sanitation plan for Lakes area priced at $127 million

OTTAWA—The U. S. and Canada last week approved a report submitted to them in October by their International Joint Commission. The report sets the price of abating present pollution in boundary waters at over $127 million.

Approving agencies were the Department of State for the U. S. and the Department of External Affairs for Canada. Together they had directed in 1946 the investigation leading to completion of this 311-page report.

Recommendations are these: (1) Objectives for boundary waters quality control set forth in the report should be adopted. (2) Remedial measures should be taken to meet these objectives. (3) Continuing supervision should be set up and maintained to insure accomplishment.

• **Detail**—The report sets forth quality objectives and describes existing pollution in some detail. Then it sets dollar value on remedial measures needed.

Concerning supervision of these remedies, it says IJC should "notify those responsible" for pollution found objectionable and, if necessary, make recommendations to the authority having jurisdiction to take further action.

This means IJC should foster pollution abatement by cooperation with federal, state and provincial agencies that must administer it. The report recommends a technical group be set up to maintain a continuing interest in the problem.

• **Breakdown of the need**—In the Huron-Erie section (St. Clair R., Lake St. Clair and Detroit R.) liquid waste treatment needs total $104 million worth. On the U. S. side: $68 million for municipal wastes; $13 million for industrial. In Canada: $20 million municipal; $3 million industrial.

In the Superior-Huron section (St. Marys R.) the total dollar value on abatement needs is set at $4.5 million. In the U. S.: $1,250,000 municipal and $150,000 industrial. In Canada: $2,750,000 municipal and $350,000 industrial.

In the Erie-Ontario section (Niagara R.) $19,100,000 worth of remedial works are called for. U. S. side: $7,250,000 municipal; $4 million industrial. Canada: $2,250,000 municipal; $100,000 industrial.

The ten-man international commission had technical advice of these 13 sanitary experts in writing of the report: For the U. S.: J. K. Hoskins, L. M. Fisher, L. F. Warrick and M. LeBosquet. For Canada: G. H. Ferguson, W. R. Edmonds and J. R. Menzies. For Michigan: J. M. Hepler and L. F. Oeming. For Ontario: A. E. Berry and A. V. DeLaporte. For New York: Earl Devendorf and C. R. Cox. A sizable field staff participated.

50% newsprint expansion gets Government approval

WASHINGTON—The Government's approval of a 50% expansion of newsprint production facilities may bring construction of six new plants at a total cost of $63.5 million.

The Defense Production Administration approval puts newsprint production in the defense industry class and permits new plants to apply for fast tax write-offs and material priorities. Six newsprint companies planning to build plants will learn within a month whether they will get the accelerated amortization. The firms:

Bowater Paper Co., Inc. in eastern Tennessee, $39.7 million; Southland Paper Mills Inc., of Lufkin, Texas, $15 million; West Tacoma Co., Steilacoom, Wash., $5 million; Great Northern Paper Co., Maine, $2 million; Michigan Paper Co., Plainwell, Mich., $1.5 million and the Crown Zellerbach Corp., West Lima, Ohio, $214,000.

In announcing the new approval, government officials warned that "more urgent defense projects" would get materials before newsprint plants.

Too much pay charged

WASHINGTON—Making its first major complaint of this kind, the Wage Stabilization Board has accused a construction firm of violating its controls program by paying workers too much money.

The complaint was issued against J. D. Hedin Construction Co., Inc. of Washington, D. C. It alleges that the company made illegal wage payments in connection with construction of a $7-million veterans memorial hospital at Ann Arbor, Mich.

The company was alleged to have paid 60 bricklayers $3 an hour although the lawful wage rate for bricklayers in Ann Arbor was $2.755. The Detroit Regional Enforcement Commission will hold a hearing on the charges in Detroit on Dec. 6.

The company faces possible penalties for violations of wage controls including a $10,000 fine or one year in jail for the offender or both, and denial of the illegal wage payments as an allowable expense for income tax purposes or in determining costs under any government contract.

NPA plans to loosen self-certification

WASHINGTON—An estimated 15,000 additional small users of steel, copper, and aluminum will no longer need to file applications for quarterly allotments of those metals after April 1, next year, according to an announcement from the National Production Authority.

Quantities which may be purchased merely by certifying on the order form that the buyer qualifies for the small-user exemption from allocations have been increased.

After April 1, self-certification can be used to obtain in any quarter deliveries not exceeding 30 tons of carbon steel, eight tons of alloy steel, 1,500 lbs of stainless steel, 3,000 lbs of copper, and 2,000 lbs of aluminum.

Under present limits which will remain in effect until second-quarter 1952, self-certification applies to quantities under five tons of carbon steel, one-half ton of alloy steel, 500 lbs of copper and 500 lbs of aluminum. Stainless steel may not be purchased by self certification.

Announcements of the increased limits will give more hunters licenses. Whether they will find any more material will be then as much an open question as it is now—unless supplies of critical materials are more plentiful, and NPA does anticipate that they will be.

A bricklayer answers the critics—and makes a few pointed suggestions

Harold A. Gadsden
Journeyman Bricklayer and Member, BM&PIU, AFL
Washington, D. C.

IT IS A COMMON BELIEF of the general public, and also of many responsible officials, that bricklayers have a conspiracy—promoted by union officials—to limit output to 300 or fewer bricks per day. I have been in construction since 1913 and have a wide acquaintance among construction men, especially bricklayers. I never have had the slightest intimation of such a conspiracy.

Those who accuse the bricklayer of "soldiering on the job" deserve an answer. There is a reason for low production: The bricklayer lacks supervision. Supervision to a bricklayer, or to any other workman, means to be told—by someone who can himself do the job—what is to be done. It also means seeing to it that there are materials at hand and that working conditions are safe. This supervision is not given. Here is how the lack of it has affected production on jobs where I have worked as a bricklayer:

• **Slow job**—In 1947, on the addition and alterations to a building in Raleigh, N. C., three bricklayers and an apprentice took 14 bricklayer-hours to lay 598 bricks. This was the general average. But on one day the same crew—between 7:45 am and 3:15 pm—laid 2,009 bricks; 1,533 were laid between 12:30 and 3:15 pm while the contractor was on the job directing the work. Most of the time the scaffolding was bad, materials were furnished slowly and an apprentice of less than a year's training directed (that is, supervised) the work. All of this bricklaying was face work.

• **Fast job**—By contrast, the same contractor in the same year erected a public school building at Wendell, a few miles from Raleigh. The walls were of brick backed up with concrete and cinder blocks. After completion, the contractor said the masonry work cost $200 less than the estimate.

While directing this work, the contractor spent most of his time on the job. Bricklayers' wages at the time this job was let were $1.75 per hour; but the men were paid $2.00. On some days each bricklayer laid 900 bricks plus 100 cinder or concrete blocks.

Other conditions aided high job production by the bricklayers. Mortar was mixed with twenty full-sized No. 3 shovelsfull of sand to the bag of mortar cement, instead of the customary fifteen shovels (3 cu ft of sand). Thus there was no excess of mortar cement to affect the economy of the masonry work. Not many inferior bricks were delivered to this job, so the bricklayers did not have to lose too much time culling them.

For the same contractor, on a church job in Raleigh, bricklayers averaged more than 1,700 bricks each per nine-hour day. On the church foundation walls, most of them 16 in. thick or thicker, production on some days went up to 2,300 bricks per man.

By comparison, low production was the rule on $1,100,000 Raleigh building group (1947-48), where most exacting work was required. This was a "Flemish bond" job. On occasion, bricklayers laid as many as 810 bricks per nine-hour day, but this production was far above the average. Many days they averaged only 370.

• **Poor working conditions**—Working conditions on this job hampered steady production. Often the bricklayers had to stand around waiting for mortar or brick, or both. The delays were not timed, but frequently groups of from five to ten bricklayers would stand around long enough for each man to smoke three king-sized cigarettes before he could lay a brick. The scaffolding was bad; men working on it had to be agile as mountain goats to keep from being injured. A large percentage of the bricks appeared to be of poor quality; several bricklayers had to spend part of their time culling material to keep from using inferior bricks in the exposed work.

Production of these buildings was much below that attained on two other North Carolina jobs, built about the same time. On those jobs, one of the construction industry's best bricklayer foremen supervised the work.

• **Naval hospital**—Better production, also in 1947, was obtained on the $13,000,000 U. S. Naval Hospital at Beaufort, S. C. There a crew of twelve—bricklayers and apprentices—laid 39,500 bricks over a five-day period, averaging 756 bricks per journeyman per nine-hour day. The work was of top quality. Supervision was good, with the inspectors walking the scaffold. Actually, the inspection was so rigid as to add unnecessary cost to the job—from a bricklayer's standpoint.

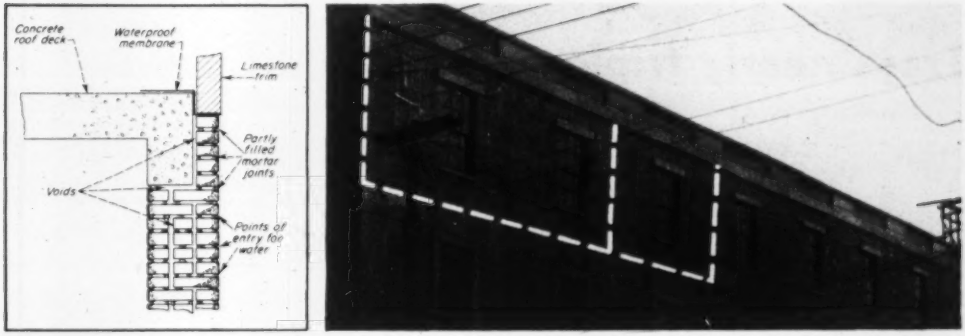
Unfavorable conditions, on the other hand, cut production and quality of the work on a $200,000 building addition in Raleigh. Here the bricklayers did not have adequate supervision. The bricklayer foreman quit the job in its initial stages. Thereafter, the bricklayers were directed by the superintendent and his assistant, both engineers. Neither of them appeared to know the fundamentals of bricklaying, yet the assignment demanded top quality work.

Four to six bricklayers and two apprentices worked most of the time, this force being increased occasionally to ten or twelve bricklayers and apprentices. Production ranged from 300 to less than 600 bricks per man per nine-hour day. Bricklayers waited long periods for scaffolding, materials and direction. On one occasion five men waited four and one-half hours for three window frames to be set.

• **Near-accident**—Working and safety conditions were bad. Debris consisting of broken masonry as well as old concrete forms with protruding nails, littered necessary working spaces. Scaffolding—both interior and exterior—was hazardous; many times there was no scaffold where it was needed. Laborers had no one to direct them in the placing of materials or to show them how to raise a patented swinging scaffold. On one occasion several men barely escaped being knocked off the scaffold to certain death when concrete forms were carelessly stripped.

Reaching their places of work was a constant hazard for the workmen. For several weeks, those who worked on the upper floors of this building had to climb a 15-ft vertical ladder, then shinny over and around debris—or up and down the sides of concrete column forms—to get to and from their places of work.

• **D. C. troubles, too**—Poor working conditions are not confined to the Southeast. The same pattern of bricklaying difficulties holds for the District of Columbia and—according to reliable reports—for the entire nation. As an example, the bricklayers



HOW TO SKIMP, and what happens when you do. Drawing is a cross-section of a brick wall with joints only two-thirds filled by mortar. Left-hand zone of photo shows mortar wash-out streak on poorly-laid brick wall. Brick in zone at right was laid with joints full of mortar. No streaking resulted.

on a $50,000,000 government building, now under construction, are handicapped on at least half of the exterior walls by a screen of piping, prematurely placed to form a barrier that cuts production in half on this part of the work. Production on this job is further reduced by the design and selection of the brick.

In a similar way, production is cut by at least one-third on a building now being built at a university in Washington, D. C.

• **Quality troubles**—On all the jobs discussed here, the quality of the work has varied as much as production. The hidden qualities of brickwork are the factors that affect the ultimate cost of the masonry—that is, the durability and the economics of upkeep of the structure. Sometimes poor quality shows up at once in the exterior or other visible parts of the work; more often it does not. But sooner or later poor masonry is revealed by discoloration and disintegration of interior wall surfaces. Often, too, serious leaks occur. In every building that is poorly built, heating and painting as well as other costs are affected adversely.

Good workmanship in masonry depends on a combination of factors. These include the knowledge, ability and integrity of the bricklayer, his foreman and the job superintendent, plus the knowledge and integrity of the inspector, if there is an inspector on the job.

Quality of the work at the two District of Columbia sites was, and is, as good as can be done and far above the average. On most of the other slow jobs mentioned, the quality of the work was poor. One is shown by an accompanying photograph and sketch. In the picture of this building, the white streaks in the large outlined section are not efflorescence stains. (Efflorescence is the white discoloration on masonry that results from salts and other chemicals inherent in the materials). The stains on this part of the building were made by mortar washed out of the wall by a rainstorm.

• **Evidence of poor work**—This upper section of the work was completed late one afternoon. The waterproofing membrane was placed and the facing stone at the roof deck was set by the superintendent and an apprentice bricklayer. Rain began to fall three days later, in the afternoon. It continued all the next day. On the following day, water was observed seeping out of the joints at the tops of the streaks.

No seepage marks show in the smaller outlined portion, to the right, in the same photograph, even though all of this portion of the wall was laid up at the same time. This smaller section of the work was done correctly; that is, according to standard specifications for good masonry, all of the joints and interstices being filled with mortar. The remainder of the walls shown—and most of the other work on this job—were skimped on mortar as indicated by the sketch shown above.

About one-third less than the required amount of mortar was used. Water from the roof of the building found its way between the membrane and the faulty brickwork into the voids and crevices of the masonry and came out through the joints, washing out the mortar. Slow-setting cement was an added factor in the washing-out of mortar on this job.

The photograph and sketch are revealing for several reasons: They show the type of supervision that is all too prevalent in the construction industry, the type of training that apprentices and younger workers are receiving and, finally, what the builder, or purchaser, receives for his money. Competent supervision will not leave work open to damage by the elements where it can be prevented, nor will it tolerate the use of less than the required amount of mortar—unless fraud is involved.

• **How to get 2000 bricks laid**—Fraud brings up another point. Experienced bricklayers know how to save their employers one-third of the mortar required and an appreciable amount of brick. All they need be told is, "All right boys, the money is in the job. Get it up." This common practice explains how the production rate can be boosted to an average of 2,000 bricks per eight-hour day instead of the standard 1,000, or the 300 or less that has been claimed by the inaccurate sources.

Beyond the first cost of skimped brickwork, the total costs are cumulative and hard to estimate. The work of carpenters, trimmers, marble setters and related trades is multiplied. Plasterers need extra time and materials to straighten out faulty work, and carpenters require extra time to hang doors, if they can be properly hung at all under these conditions.

Wherever decent and harmonious working conditions, competent supervision and honest inspection exist, the purchaser of construction gets more for his money. This desired result is to be contrasted against those working conditions, supervision and inspections affected by fraud. Under fraudulent conditions, the competent worker quits as soon as he can find another job, and the project is left with the incompetents: wage costs go up and production goes down, with an inferior quality of work.

Trays nearly triple settling tank capacity

Herman G. Dresser
Camp, Dresser & McKee
Boston, Mass.

BETTER SEDIMENTATION has been built into the Cambridge (Mass.) waterworks by adding two stories within existing settling basins. This expedient leaves retention time within the basins about the same, but cuts overflow rate from 1,850 to 690 gpd per sq ft of settling tank floor area.

New flocculation facilities with specially designed, stator-plus-rotor mixing devices are also being added to raise sedimentation efficiency and remove an existing overload from the plant's 16 filters—nominal capacity 22.4 mgd filtering 2 gpm per sq ft.

To these flocculation and sedimentation improvements under contract for $515,000, add $360,000 for a high-lift pumping station (three 12 mgd units in a new wing of the filtration building to replace present steam-engined pumps)—to round out cost of improvements started so far at nearly $900,000. Still to be let is a contract for a substantial utility building to house plant services; this structure is now under design.

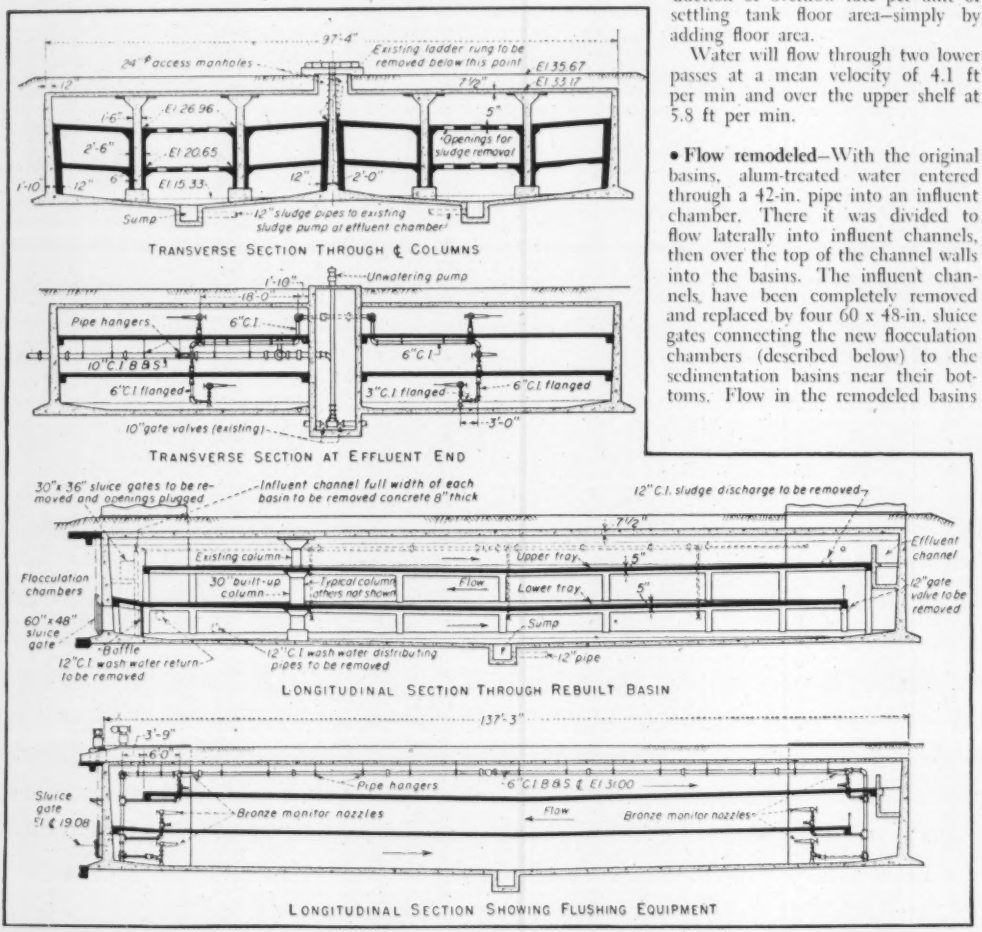
• **New capacity built in**—Two intermediate trays in each of the two existing basins are to increase settling capacity nearly threefold.

Formerly, the parallel basins had a 1.5-mg volume and provided a detention period of 94 min., during which flocculation as well as sedimentation had to take place at a mean velocity of 1.44 ft per min. Efficiency was very low. An added basin, twice the size of those existing, was proposed as far back as 1930.

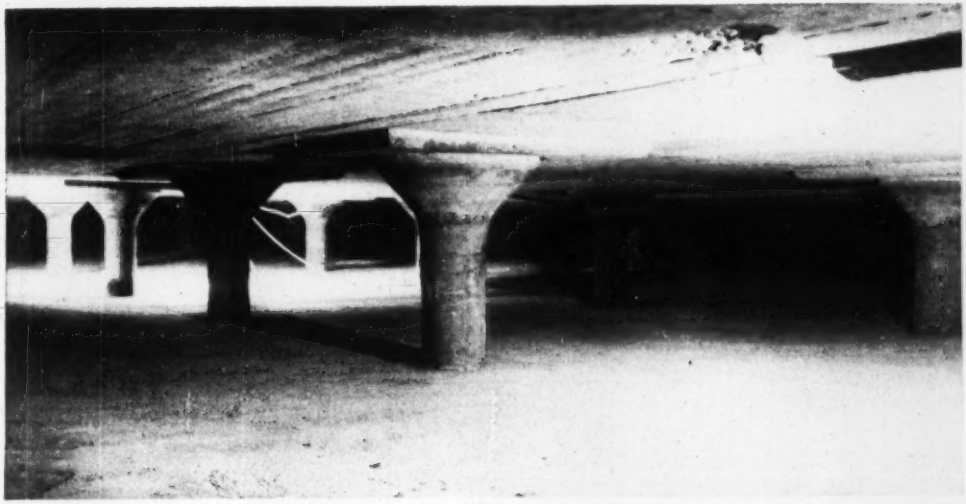
But the present renovation of the old basins will achieve, without use of additional plant area, the desired reduction of overflow rate per unit of settling tank floor area—simply by adding floor area.

Water will flow through two lower passes at a mean velocity of 4.1 ft per min and over the upper shelf at 5.8 ft per min.

• **Flow remodeled**—With the original basins, alum-treated water entered through a 42-in. pipe into an influent chamber. There it was divided to flow laterally into influent channels, then over the top of the channel walls into the basins. The influent channels have been completely removed and replaced by four 60 x 48-in. sluice gates connecting the new flocculation chambers (described below) to the sedimentation basins near their bottoms. Flow in the remodeled basins



SHELVES AND NOZZLES—Two trays built into existing sedimentation basins will collect settled floc, and the nozzles shown will flush it down to the sludge pump for removal. Black portions are new concrete: slabs, beams and built-up columns.



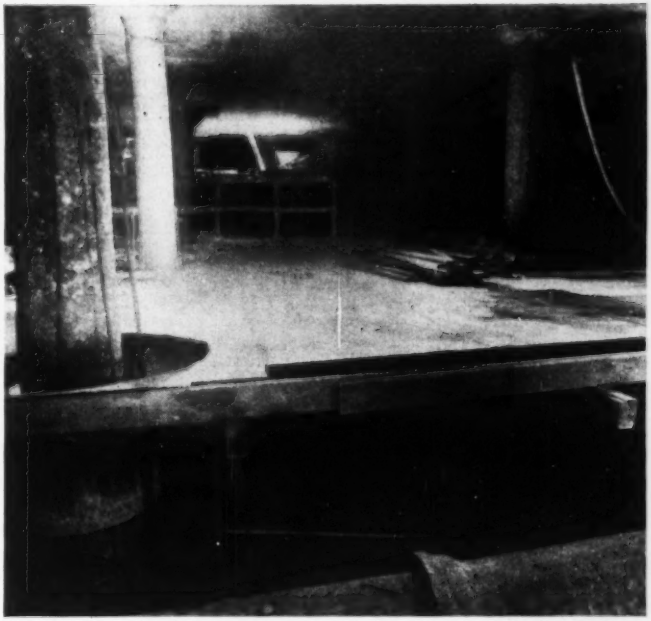
NEW SLABS, NEW SUPPORT—Roof-supporting columns were enlarged in diameter, spread into capitals to carry new slabs.

is toward the filter plant in the lower pass, in the reverse direction in the middle pass, and toward the filter plant again in the upper pass.

Design provides about 5.5 ft of headroom between floor and ceiling in the middle of the two lower passes; less than 5-ft headroom is available in the upper pass. Consideration was given to the possibility of raising the roof so as to provide adequate headroom for workmen in all three passes, but the cost of this reconstruction was found prohibitive.

To facilitate sludge removal, each tray drains to openings near its center and three monitor nozzles are installed at each end of each floor for flushing sludge (see drawing). Since sludge will be deposited on all three floors, it is not feasible to decant from the remodeled tank. In cleaning the tank, therefore, it is proposed to pump all of the tank contents including the sludge back into the adjacent reservoir, Fresh Pond. Unwatering pumps are provided at each end of the tank.

To assist the operator in determining when the basins need cleaning, sludge sampling pipes pass through the roof at each end of each basin with facilities for determining sludge depth on the trays and on the bottom of the basins. They will be drained and flushed about every ten days.

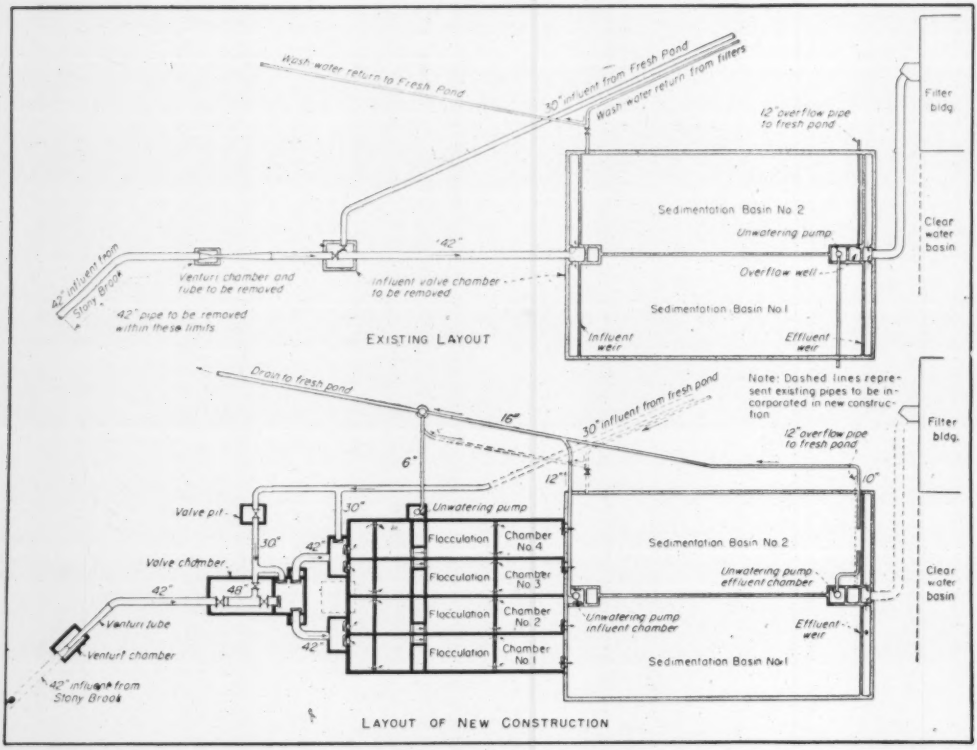


INSIDE JOB—It was like building a ship in a bottle as form work and reinforcing for the new interior were placed. All men and materials came through 7-ft holes cut in the roof (sources of light streaking in this photo).

• Structurally and constructionwise—Once the hydraulics of the settling basin renovation had been worked out, its execution was fairly straightforward. Structural design is of interest only in so far as it involved the supporting of 5-in. two-way slabs on column capitals built right around the existing, roof-supporting columns. These were enlarged from 1-ft 6-in. to 2-ft 6-in. diameter with capitals of 4-ft 6-in. diameter to carry the two new floors. In addition, 12 x 12-in. reinforced concrete columns were poured (at the interior column spacing) around the outside walls of the basins, carrying 14-in. deep spandrel beams at two levels to support the slabs. They were designed for a live load of only 25 psf, in order to keep the thickness to a minimum.

Construction of the column enlargements, capitals, and floor slabs was complicated only by the cramped quarters in which it was done.

Two 7-ft diameter holes were cut in



NEW FLOCCULATION FACILITIES will help the improved settling tank bring up plant efficiency. Previously, flocculation was supposed to have taken place in the sedimentation basin.

the reinforced concrete roof slabs of each existing basin, and through these apertures went all men and materials required to complete the renovation. All work was done in artificial light except, of course, for that directly below the access hatches.

Concrete was lowered by crane (as were form lumber and reinforcing steel) in ¼ cu yd buckets. Inside the basins it was handled in buggies. Difficulties of cramped working space were not as great as might be expected; no unusual provisions were necessary.

• **For better flocculation**—Stators as well as rotors are to be installed for better mixing of chemicals, and therefore better floc formation. Rotor blades will pass between stator blades. Addition of the stators is to prevent formation of a rotating slug of water within the flocculation chambers, which would move around with the rotating paddles and hinder mixing of the chemicals. Details of the mixing equipment are shown in an accompanying drawing.

There are four flocculation chambers being constructed—two approaching each renovated settling basin. Each flocculation chamber has an average water depth of about 16 ft, and is 16.5 ft wide. Each has an effective length of 86 ft divided into four stages (in series by means of division walls) having effective lengths of 10.5, 15.5, 30 and 30 ft respectively. The first two shorter stages are followed by a 5-ft dry well, in which the drive chains and sprockets are being installed. At the nominal plant capacity of 22.4 mgd, the detention period using all four chambers is approximately 45 min, of which 5.5 min is spent in the first phase, 8.1 in the second phase and 15.7 min in each of the last two.

For driving the flocculation equipment there are two shafts for each chamber. The shaft in the first two phases will be operated at a higher speed than the shaft for the last two phases. The paddle area is decreased progressively in the direction of flow so as to decrease the violence of the mix. In each chamber it is proposed to dissipate a water horsepower up to a maximum total of about 4.26 with a maximum of 2.03 hp dissipated in the first phase, 1.48 in the second, 0.58 in the third, and 0.17 in the fourth phase. The mechanism for each chamber is driven by a single variable speed electric motor through a reducing gear. The motor is of the movable brush type having a 3 to 1 speed range with provision for selecting any speed within the entire range.

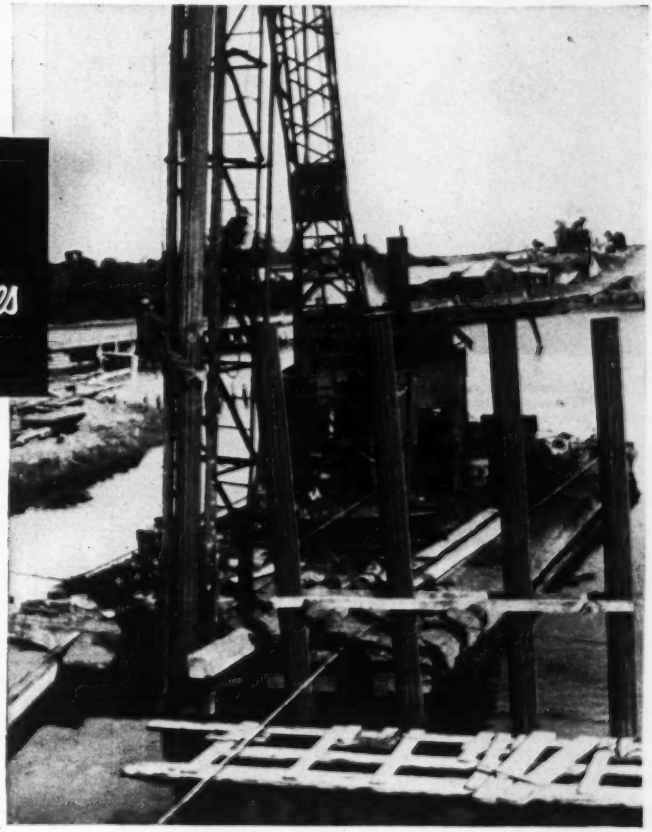
• **Other alterations**—The old influent valve chamber had to be removed to make room for the flocculation chambers, and the old venturi meter was removed to provide space for the new valve chamber. A new venturi meter has been installed.

In cleaning the sedimentation basins prior to the current improvements, one basin was taken out of service, and about two-thirds of its contents was decanted by gravity through the old wash water return to Fresh Pond, the reservoir alongside the plant. The remainder, consisting of alum floc sludge, was pumped into a sewer.

(*Continued on page 37*)

Best Start for foundation cost savings!

Monotube taper-flute steel piles



USING every possible way to save construction materials, time and money is always important. Today it's doubly so. And one of your best ways is with Monotubes. Just see the advantages you gain with these cast-in-place steel piles!

MATERIALS CONSERVED

Monotubes' tapered design and cold-rolled properties not only *save steel,* but also provide unusually high bearing values and exceptional lateral stability. So it's not uncommon to meet load-bearing requirements with less driving . . . or even *fewer* piles. And, because Monotubes are readily extendible on the job, with easy cut-off and simplified weld-splicing, further materials conservation is afforded.

TIME AND MONEY SAVED

You can see how materials are saved —*plus* time and money. And there are *more* economies! Monotubes' taper-flute design results in faster driving. Lighter, standard driving equipment can be used on most jobs. And, Monotubes' light weight makes handling and locating faster and easier.

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Send for all the interesting facts about Monotubes. Find out how their many advantages can help you save right at the start of your construction projects. For complete data, write The Union Metal Manufacturing Company, Canton 5, O.

UNION METAL

Monotube Foundation Piles

A Solid, DRY foundation for the Swifton Village— Cincinnati, Ohio

Al Loreti applying two coats of Thoroseal to foundation of one of 1200 units. Economy plus durability has made The Thoro System materials a "must" on the list of contractors who know the importance of masonry protection.

An architect's conception of a unit at Swifton Village where the $25,000,000 project will house 4,500 people.

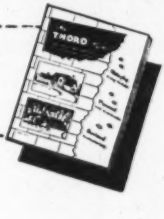
THOROSEALING a foundation has been recommended by outstanding engineers for 39 years

The Jonathan Woodner Company, designers and builders of The Swifton Village, are using Thoroseal for foundation coatings on their 7-acre housing project.

The Thoro System materials, used on this project, furnished by the Oakley Coal & Supply Company, through The Nurre Company,. Cincinnati, Ohio.

WATERPLUG Stops leaks
THOROSEAL Seals surface
QUICKSEAL Beautiful finish

Get our 20-page brochure pictorially described in detail.



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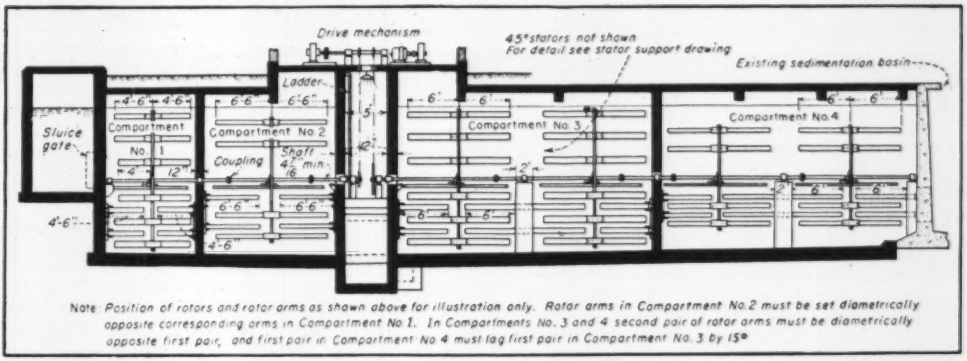
Drive mechanism
45° stators not shown
For detail see stator support drawing
Existing sedimentation basin
Ladder
Sluice gate
Compartment No. 1
Compartment No. 2
Coupling
Shaft
Compartment No. 3
Compartment No. 4
4'-6"
6'-6"
6'-6"
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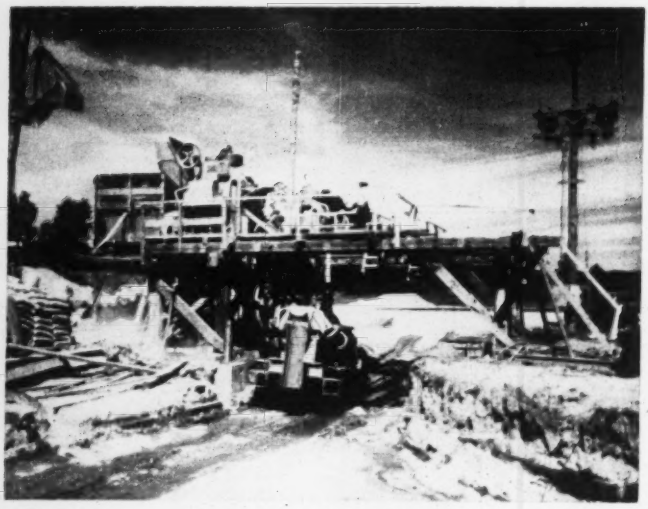


CENTRAL MIX PLANT serves non-agitating trucks that place concrete for by-pass at Freeport, Me.

Maine tries concrete again

THE BEST concrete road possible—that was the objective of the owner, the contractors, and of at least one highly interested observer when Maine built a by-pass around Freeport this summer.

The observer was the Portland Cement Association, which had a man on the job most of the time. Reason for such attention lay in the fact that this was the Maine Highway Commission's first concrete job in twelve years.

• **Bituminous, too**—While it is essentially a concrete job, the three miles of new location also include two approach sections of bituminous road. Totaling 2,900 ft, the bituminous sections are at the ends of new work. At these points the by-pass joins U. S. 1, the regular route through Freeport.

• **Strong base**—The two pavement types get an even break when it comes to support. Fills are compacted in 8- or 9-in. layers. With few exceptions the base consists of 24 in. of compacted sand, with 6 in. of compacted gravel on top. Sand came from a pit at the job. The sand sub-base in rock cuts is at least 2 ft thick. Next there is 6 in. of gravel base, topped by the pavement.

Bituminous pavement consists of: 3 in. of crushed rock penetrated with 1 gal per sq yd; 3 in. penetrated with 1.25 gal per sq yd; and 2 in. of bituminous concrete with ¾-in. aggregate.

Concrete slab for each of two lanes is 12 ft wide, of 8-in. uniform thickness, with 6 x 12-in. wire mesh 2 in. below the surface. Doweled contraction joints and dummy joints alternate at 20-ft intervals. There also are tie bars across the longitudinal construction joint. And expansion joints occur at 1,000-1,200-ft intervals—where each day's concreting ended.

Outside the slabs on each side are shoulders 10 ft wide, of surface-treated gravel. Right-of-way width is 250 ft.

UNIT PRICES AT FREEPORT

Portland cement concrete	
Concrete pavement, cy	$15.00
Reinforcement, sy	.55
Joint supports, ea	1.50
Bituminous concrete	
Crushed stone base, ton	5.80
Asphalt for base, gal	.16
Bit. conc. surf., ton	9.60

• **The concrete**—One batch for a 16S mixer consisted of 376 lb (4 bags) of cement, 613 lb sand, 1,154 lb gravel, and 165-lb (19.8 gal) of water. Design strength was 4,000 psi at 28 days. The mix gave a 2-4-in. slump. Sand and gravel came from Cumberland, Me. (10 mi.) and Leeds, Me., (30 mi.) respectively.

• **Dump truck concreting**—When it came to laying concrete, the contractor, W. H. Hinman, of North Anson, Me., chose to mix at a central plant and carry the air-entrained concrete in 2½-yd non-agitating bodies—the first to be used in this part of the country. With hauls ranging up to 2 miles, Hinman found that a maximum of five trucks would place the 300-325 yd of concrete that went into a good 10-hr day's run.

One of Hinman's reasons for selecting the central-mix method was that he didn't have a paver. The job wasn't big enough to warrant buying one and no one else in the state had one to rent.

Although Hinman had used transit mixers for some slabs in the past, he liked the flexibility and low investment factor of the dump trucks. Two of his 16S mixers fitted into the scheme nicely.

• **Mixing plant**—These mixers stood on a platform over a truck runway. The mixer's skips operated on long tracks down to ground level where they were charged with aggregate by a trolley batcher. The batcher shuttled to both skip positions from a loading and weighing point under a 3-compartment bin. Cement was hand-loaded into skips.

The mixers fed 16-cu ft batches into standard one-yard buckets fixed in the platform's frame. Two batches filled each bucket to the brim, whereupon a truck drove under, picking up half its load from each bucket.

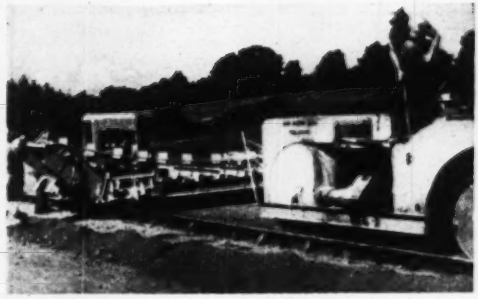
How concrete was handled in the forms, and how the roadway was prepared for concrete, is detailed in the accompanying photographs. Final treatment was a longitudinal burlap drag. For curing, the surface was sprayed with water, covered with paper and kept wet for four days.

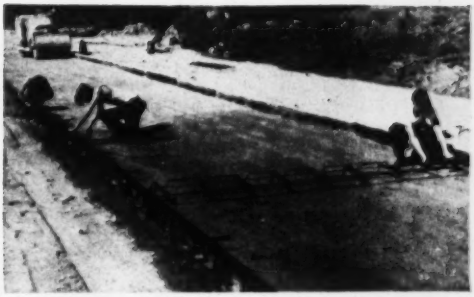
The pavement contract was completed in September. By-pass opening awaits completion of a railroad overpass being built under another contract.

Management—Resident engineer for the Maine Highway Commission was Dana Bartlett. Dewey Rice was Hinman's superintendent and H. S. Fox represented the Portland Cement Association at the site.

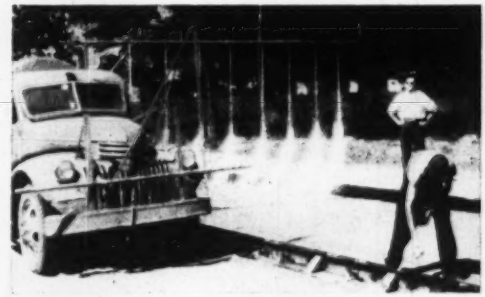
FAMOUS MERCHANT OBJECTS

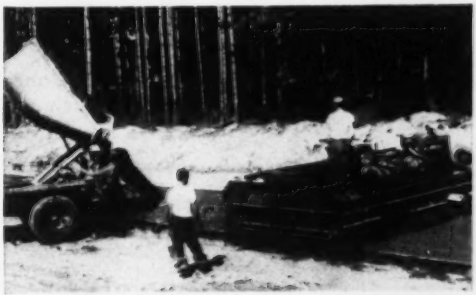
L. L. Bean, Freeport's well-known merchant of outdoor goods, says in his current mail-order catalog: "The new road around Freeport is longer and slower. There are five lights on the by-pass and only one on the straight U. S. 1 business highway through Freeport Village." Mr. Bean, incidentally, keeps his home store open 24 hours a day, seven days a week throughout the year.



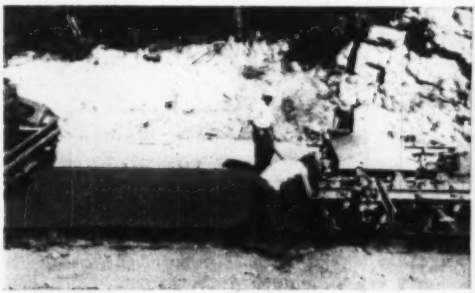


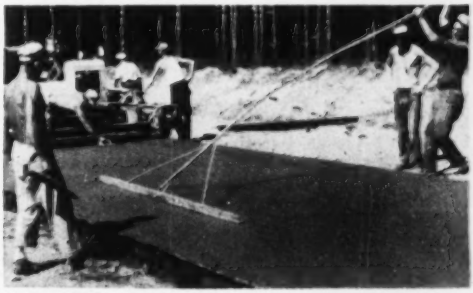
CAREFUL ATTENTION to every modern-designed detail is expected to make Freeport by-pass a shining example of concrete highway construction. Subgrader and roller (left) put slab foundation in its final shape. Dowels go in at right.



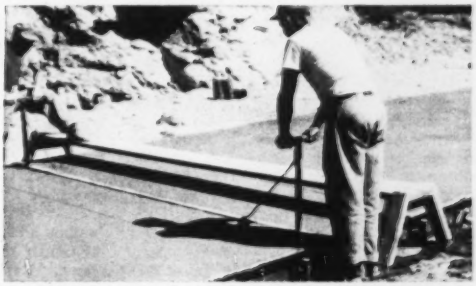


INNOVATIONS IN MAINE—Job-built sprinkler (left) wets sub-grade before concrete placement. Fine spray from high bar loses momentum, doesn't erode subgrade. Truck dumping of concrete ahead of screed (right) is first operation of its kind in Maine.

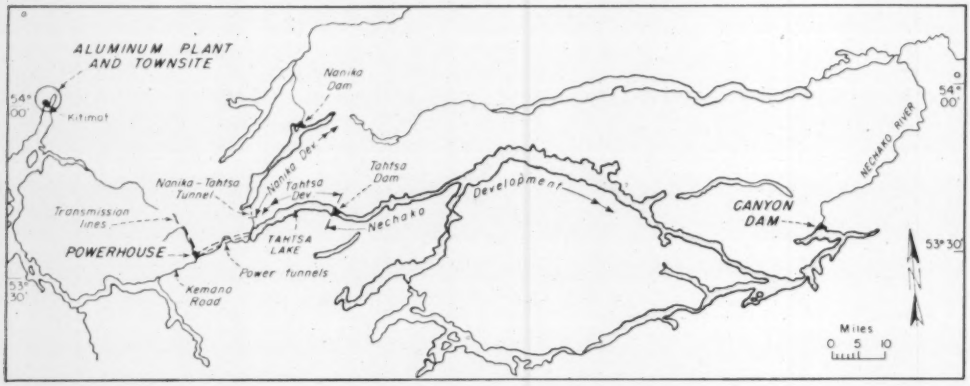




MACHINE FINISHING (left) combines with hand floating (right) to deliver an even surface. Specifications call for no more than ⅛ in. per foot variation from a straight line. One man handles 10-ft float on 12-ft slab width.



INSPECTOR CHECKS EVENNESS with an aluminum straight-edge, also 10 ft long (left). At right, workmen settle T-bar into fresh concrete, making place for a 2 x ¼-in. slug that will create weakened-plane dummy joint. (ENR staff photo)



In these wilds of British Columbia Canada's Alcan has begun huge hydro development which will power . . .

World's biggest aluminum plant

THE ALUMINUM COMPANY of Canada's British Columbia project is a real case of bringing the mountain to Mahomet. The mountain in this instance is raw alumina refined from bauxite in the British West Indies. It will be brought 6,000 miles to northern British Columbia where large quantities of inexpensive hydroelectric power can be developed to refine the product.

It all adds up to a herculean construction job that when completed will include: (1) a hydroelectric development with 1,800,000 kw of installed capacity, (2) aluminum potlines with 500,000-ton annual output and (3) a town for 50,000 people. First stage of the development alone includes contracts said to be worth $168,000,000.

When the whole job is completed, Alcan will have doubled its present aluminum capacity. The 500,000-ton plant will equal all of the present huge U. S. expansion and will turn out over 60% as much aluminum as the U. S. can presently produce (before the expansion).

After several years of planning, actual construction got underway in March, 1951. First-stage development is scheduled to be far enough along for the first output of refined aluminum in 1954. Further development work will continue for a number of years after that before the full power potential and plant output is developed.

Work underway this year includes access roads, construction plant, winterized camps, power tunnel adits and a diversion tunnel for the project's main dam (Canyon Dam on the Nechako River). The latter tunnel, a 1,600-ft long, 32-ft dia bore, was completed last month. Work on the dam will continue as rapidly as possible through the winter with full-scale effort on the 5,000,000-cu yd earth-and-rock fill structure to be developed next year.

The whole plan hinges on Canyon Dam, which will interconnect a series of lakes to form one large high level reservoir (El 2,800 ft). Water from the upper end of this reservoir (more than 100 miles west of the dam) will be diverted through 10-mile-long tunnels down mile-long penstocks to a power plant located in a man-made cavern on a coastal river, the Kemano. Normally, the Nechako River empties into the Fraser River which in turn takes the flow to the ocean by way of Vancouver.

• **Design problems**—The penstocks and transmission lines are two of the major design features, and final details are not yet available.

In general, however, the penstocks for the first eight generating units are expected to consist of two 11-ft dia steel pipes in shafts inclined at 30 to 48 deg with the horizontal. Gross head with a full reservoir will be 2,590 ft. The engineers have not announced how the steel liner sections will be connected—welding, riveting, bolting and coupling are the connection types that are under consideration.

Topography complicates transmission line design. The direct route between the Kemano River power plant and Kitimat—site of the town and aluminum plant—is only 50 miles. However, the lowest mountain pass separating these localities is in excess of El 5,000 ft. Space in some deep canyons along the route is so restricted that the possible number of parallel transmission lines is limited. Thus, the problem has been to determine how large conductors can best be strung over these high mountain passes and to make certain that transmission lines will hold up in the severe northern winters.

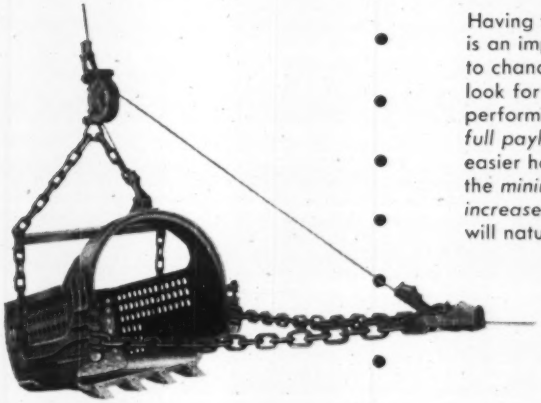
A small test installation was made and left in place over the winter of 1950-51. Automatic recording instruments measured the amount of ice formed on the cables and the weight involved. Result is that the high level portions of the lines are designed for an ultimate load of 40 lb per ft of conductor to allow for ice, wind and other loads.

Stringing the 2¼-in. dia conductors (largest ever used) over spans as much as 3,000 ft will be the most spectacular single construction operation on the

(*Continued on page 43*)

One way to buy a dragline bucket . . .

and the right way



Having the right dragline bucket for the job is an important decision that should not be left to chance. In choosing your next dragline bucket look for *strength and durability* for long-lasting performance. Choose the bucket that gives you *full payloads everytime* with perfect balance for easier handling. Choose the bucket that requires the *minimum of maintenance* and offers *increased profits* on every job! Your choice will naturally be a HENDRIX DRAGLINE BUCKET!

3/8 to 40 Cubic Yards

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

Hendrix Buckets Also Available Without Perforations On Special Order Only

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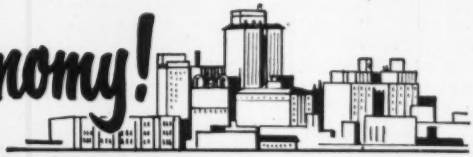
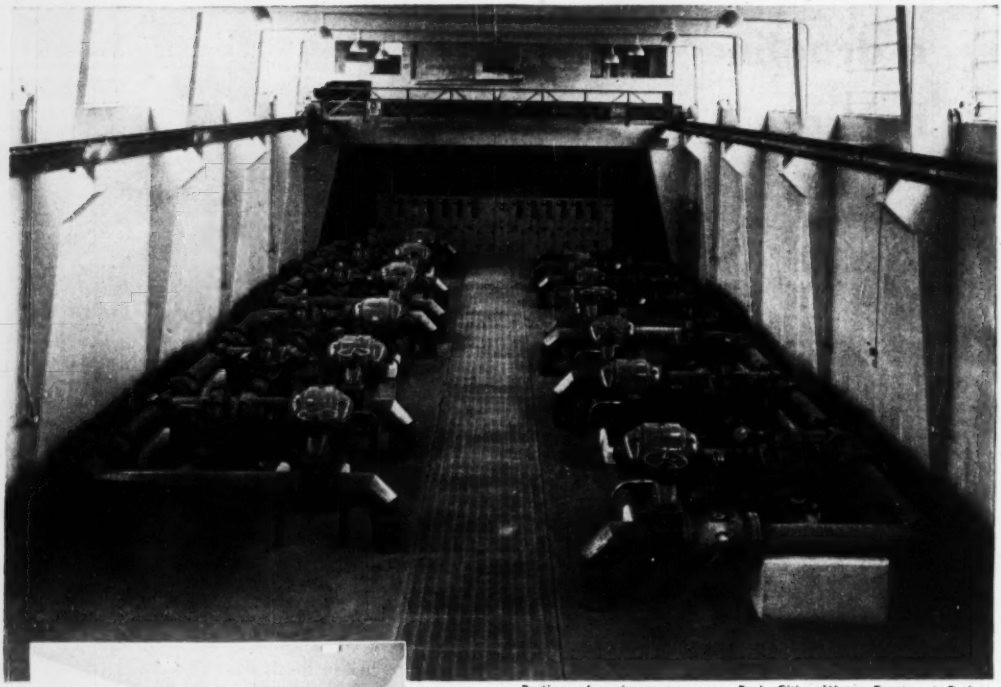
MANSFIELD – LOUISIANA

Now...Dallas Park Cities are pumping with Economy!





Portion of main pump room, Park Cities Water Treatment Project. Shown are 13 of the 22 Economy Pumps installed on this project.

View in University Park Booster Station, part of the Park Cities project. These Economy Pumps boost the pressure going to the overhead storage tank, located 5 miles from the treatment plant.

in new Park Cities, Texas, Water Treatment Plant

Economical operation over a period of years was a primary requisite of the pumps for Park Cities Water Treatment Project, Dallas. In selecting pumps, Powell & Powell, Consulting Engineers, drew up specifications which took into consideration cost of equipment, efficiency of each unit and efficiency of units operating in series, plus rigid structural requirements and refinements of mechanical detail. Under this very exacting evaluation formula, Economy Pumps, designed especially for water works service, supplied by the Lone Star Pump and Machinery Co., were selected, on the Dallas County project.

It pays to specify Economy Pumps for water supply. For detailed information and illustrated catalogs write today to Dept. CB-11.

Economy Pumps, Inc.

SEDGLEY AVE. at 19th and LEHIGH, PHILADELPHIA 32, PA.

Worlds biggest aluminum plant . . .

(Continued from page 40)

job. However, this won't take place until the 1952-1953 construction seasons.

In digest form, the other major features of the hydroelectric development are the following:

• **Reservoir**—Formed by a series of dams, largest of which is Canyon Dam—an earth diaphragm, rockfill, 280-ft hydraulic height, 1,500-ft crest length, 5,000,000 cu yd of fill. Also several other smaller saddle dams and flood spillways.

• **Tunnels** — Ultimate development will include two tunnels, but only one is to be built now. It is 10 miles long connecting Tahtsa Lake with the penstocks. The 25-ft horseshoe section tunnel will be worked from four headings, one at each end and two extending from center adits. Invert will be concreted, rest of tunnel concreted only as needed.

• **Powerhouse**—Will be in an underground cavern excavated from solid rock. Powerhouse for ultimate 16 units will be more than 1,000 ft long, 135 ft high and 80 ft wide. Initial installation is three units. Four tunnels will pierce the 1,400 ft of rock surrounding the powerhouse including two tailrace tunnels, one access tunnel and one ventilation tunnel. Latter is initially a pilot to arch of powerhouse.

• **Turbines**—Vertical-shaft, four-jet, impulse type; 150,000 hp maximum output each. Order has been placed for first three units, one each coming from Pelton, Allis-Chalmers, and Dominion.

• **Generators**—Sixteen 106,000-kva, 80% power factor with 115% continuous overload capacity. One each ordered from Westinghouse, General Electric and English Electric. First unit scheduled on the line April 1, 1954 with other two following at about 3-month intervals.

• **Organization**—Hydroelectric design is being done by British Columbia International Engineering Co. under the direction of W. G. Huber, vice-president. Hydroelectric construction is being done by Morrison-Knudsen Co. of Canada, Ltd., an affiliate of Morrison-Knudsen, Inc. of Boise, Idaho. Working with M-K are two Canadian firms, namely, Mannix Ltd. of Calgary and Northern Construction and J. W. Stewart, Ltd. of Vancouver.

• **Town and Plant**—Responsibility of the designers and constructors of the hydroelectric facilities ends with delivery of the power to Kitimat. Here, others will take over to design and build the final substation, the aluminum reduction plant, the town, docks and ships. The Aluminum company is designing the potlines and other plant facilities. Initial development will have capacity for 100,000 tons yearly.

The town of 50,000 ultimate size is being laid out with Clarence F. Stein as the Aluminum company's professional representative coordinating the work and the New York firm of Mayer & Whittlesey as consultant for site and master plan.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Contractor may pay debts of subcontractors

A general contract required the contractor to pay all bills for labor and materials and permitted the commonwealth for which the work was being done to retain monies due the contractor to settle all claims for labor and material. The contract also required the general contractor to furnish a bond as security for the payment of such labor and materials. Under such provisions of a contract, it was held that a prime contractor could settle claims filed for labor and materials furnished a subcontractor and could deduct such payments from the balance due the subcontractor.[1]

(1) Berkal v M. De Matteo Const. Co., 98 N. E. 2d 617, Supreme Judicial Court of Mass., May 4, 1951.

Upset cost of construction

A contractor agreed to build a house for a stated sum and agreed to credit all payroll and other advances made by the owner, or made by others and charged to the owner's account, against the contract price. Where the amount of the cash advances made by the owner plus the credit advances made by materialmen for which the owner was liable, exceeded the fixed contract price, the owner had a cause of action against the contractor to recover such excess sum on the basis of breach of contract.[1]

(1) Jones v. Bohannon, 64 S.E. 2d 918, Court of Appeals of Georgia, April 25, 1951.

Damage from blasting

"It is almost universally held that one who by exploding dynamite causes damage to another's property through flying debris is absolutely liable for that damage irrespective of whether he was negligent either in the selection of the time or place for the blasting or in the method of blasting which he followed. This rule rests on the principle that the explosion of dynamite is an intrinsically dangerous operation, and that, therefore, one who engages in it acts at his peril.[1] This rule has been adhered to in Connecticut. It has been stated as follows: A person who uses an intrinsically dangerous means to accomplish a lawful end, in such a way as will necessarily or obviously expose the person of another to the danger of probable injury, is liable if such injury results even though he uses all proper care.[2] Although in that case we were speaking of liability for injury to person, the principle stated governs liability for injury to property as well."

"In cases in which the damage resulting from the explosion of dynamite has been caused, not by flying debris, but by concussion of the atmosphere or vibration of the earth, there is a clear-cut division of authorities. Some jurisdictions hold that there is no liability for such damage unless there has been negligence on the part of the blaster. This is the so-called New York rule, and it is followed not only in that state, but also in Alabama, Arizona, Kansas, Kentucky, Maine, Massachusetts, New Jersey and Texas.

"In the greater number of jurisdictions however, as is indicated by the following citations, no distinction is made between damage resulting from the throwing of debris on the one hand and damage resulting from concussion or vibration on the other. The dynamiter is held absolutely liable for the latter as well as the former."[3]

Numerous cases are cited by the Connecticut court to sustain the propositions of law given in the decision from which these quotations were taken.

(1) Citing 2 Cooley, Torts (4th Ed.) sec. 260; 22 Am. Jur. 179, sec. 57; Restatement, 3 Torts, sec. 519, 520, comment c.
(2) Citing Worth v Dunn, 98 Conn. 51, 59, 118 A. 867.
(3) Whitman Hotel Corp. v Elliott & Watrous Eng. Co., 79 A. 2d 591, Supreme Court of errors of Connecticut, March 13, 1951.

A new look at engineering employment

A NEW APPRAISAL of the employment situation in the principal fields of engineering has just been issued by the Bureau of Labor Statistics of the U. S. Department of Labor. It is entitled "Effect of Defense Program on Employment Outlook in Engineering."

Although this new report does not say so, it appears to have been issued to offset as far as possible at this late date the unfavorable effect of a finding issued in March of last year. That report said that the number of graduates from engineering schools during the next few years "Will greatly exceed the number of engineering job openings." (ENR March 16, 1950, p. 26.) Within a few months, the shortage of engineers that soon was to become nationwide had begun to develop rapidly.

However, the Bureau of Labor Statistics was not alone in making a bad guess at that time. Late in May, Engineers Joint Council issued a finding that industrial companies were employing 28 percent fewer engineers than in the previous year, government agencies 33 percent less and engineering schools 44 percent less.

In its new report the bureau takes a much more optimistic view. It says, in part:

"Highlights of the current employment situation and outlook in the profession are, briefly, as follows: A serious shortage of engineers has developed since mid-1950, owing primarily to the increased demand for personnel generated by the defense program. Opportunities both for new graduates and for experienced men will be excellent in the near future. Over the long run, the profession will probably continue to expand substantially, under conditions either of peacetime full employment or of continuing mobilization."

• Growth of the profession—"Engineering, by far the largest technical profession, is one of the Nation's fastest-growing fields of work. It is estimated that over 400,000 engineers are now employed in the country. There has been a tenfold expansion in the profession over the last half century. During the past decade alone, the number of engineers employed is estimated to have increased by about two-thirds (from 245,000 in 1940).

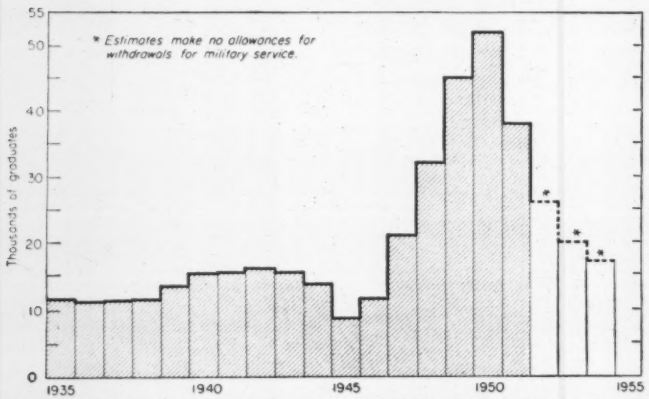
"Industry's need for technical personnel grew rapidly during World War II, as a result of the changeover to war production and the great increase in industrial activity. It rose also during the postwar period of reconversion and expansion in civilian-goods industries. Then, in late 1949 and early 1950, the demand for engineers slackened; a survey of leading employers in January 1950 showed that they expected to hire fewer engineers that year than in 1949. This slow-up of the profession's growth was of short duration, however. The hiring of engineers rose sharply immediately after the Korean crisis began and a new mobilization program was announced. The increase in demand was so great that, by the end of the year, many employers reported a need for additional personnel, though the engineering schools' 1950 graduating class was the largest in history.

"All major branches of engineering have shared in the profession's growth but the expansion has been more rapid in some branches than others. Mechanical engineering is now the largest branch, with nearly 40 percent of the profession's members. Civil engineering, which was the largest branch prior to World War II, has dropped to second place, with about 25 percent of all engineers. The proportions employed in the other major branches of the profession are estimated to be as follows: electrical, 20 percent; chemical, 10 percent; and mining and metallurgical, about 5 percent."

"Altogether, about three-quarters of all engineers (300,000) are now employed in private industry. Some 90,000 work for government agencies, Federal, State, and local. About 10,000 are in educational institutions."

• Demand is growing—"Besides the engineers required as replacements, large numbers will be needed for growth of the profession. Continued expansion is likely in the types of industrial activity which make the most use of engineers' services—manufacturing, mining, construction, transportation and public utilities. The increasing utilization of engineers for many different functions in industry will also be an important factor in the expansion of the profession. Engineers will be needed not only to staff newly created positions but to fill jobs previously held by men with other backgrounds, where professional engineering skill has come to be required."

"Under present mobilization conditions, the number of new engineers needed will undoubtedly be much higher. The mobilization program has created a great, added need for engineering personnel in defense industries and those converting to defense production and in the development of new defense-related products. Though an exact estimate of the number of new graduates required to meet both defense and civilian needs cannot be made on the basis of the available information, the average annual demand during a prolonged



ENGINEERING GRADUATES reached a peak in 1950 and will decline sharply until at least 1954. The Bureau of Labor Statistics made no allowance for the effect of the draft in its estimates for 1952-54. (Bureau of Labor Statistics chart)

partial mobilization would probably be at least 30,000.

"In addition to replacing men who die or retire, this number of graduates would provide 21,000 to 22,000 engineers annually to fill new jobs and make up for any transfers out of engineering not offset by transfers into it from other fields. It would make possible a fairly rapid growth in the profession, both in absolute numbers and relative to the total number of engineers now employed in the country (estimated at over 400,000).

"Although 30,000 new engineers per year might be enough to meet the demand over a long period of partial mobilization, the number of new graduates needed is expected to be much greater still in the immediate future, while defense production and development work are still in the initial build-up stage. In June 1951, the Engineering Manpower Commission of the Engineers Joint Council made a survey to find out how many new graduates employers needed. Replies were received from companies and government agencies employing a total of 128,000 graduate engineers, or nearly a third of the engineers in the country. These employers alone reported a need for 22,000 new engineering graduates. This fact suggests a total Nation-wide need for many more than 30,000 graduates immediately, in the tooling-up and development stage of the defense program. The employers in the survey had obtained acceptances of job offers from only about 10,000 members of the 1951 graduating class.

"These estimates all assume that the country will have only partial mobilization, at about the level planned in mid-1951. If the international situation should at any time make it necessary to have full mobilization, the demand for engineers would be greatly increased."

• **Estimated Supply**—"During the next few years the supply of new engineers is likely to be far less than the demand.

"Engineering graduations will decline sharply from the peak figure of 52,000 reached in 1950, when the greatest number of veterans completed their training. Previous record classes of 21,000, 32,000 and 45,000 were graduated in 1947, 1948, and 1949, respectively—also reflecting the postwar influx of veterans in to the colleges. Freshman enrollments have dropped sharply since 1946 in engineering and other specialties which are predominantly men's fields, as the number of veterans entering college has declined. In the fall of 1950, the first-year engineering class was once more made up almost exclusively of non-veterans, and the engineering schools got about their prewar proportion of high school graduates.

"On the basis of 1950 enrollments and assuming prewar drop-out rates (for example, 50 percent between entrance and graduation), the numbers of engineering graduates in 1951 and the following three years may be estimated as follows: 1951, 38,000; 1952, 26,000; 1953, 20,000; and 1954, 17,000. The figure of 17,000 graduates for 1954 is below even the average peacetime demand and is far below the number needed under mobilization conditions.

"These estimates of graduations make no specific allowance for withdrawals of students for military service. However, in view of the recently announced policy with respect to college-student deferments, the proportion of present students leaving for all reasons may not greatly exceed the drop-out rate of previous years (which includes those leaving because of financial difficulties, ill health and the like, as well as poor scholarship)."

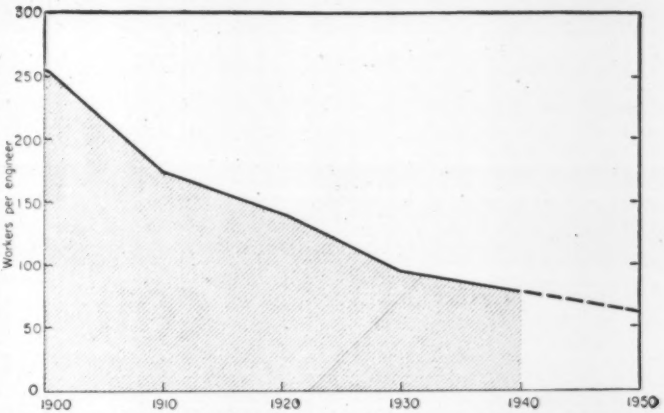
"Not all of the students graduating from engineering schools will be available for civilian employment. A number will be definitely committed to military service."

• **Future supply**—"The number of young men graduating from high school and potentially available for college entrance each year will soon begin to rise. After the middle of the decade, the increase in high school graduations is expected to be sharp. But during the next few years, the gain will be very slight and any effect it might have on college enrollments will, in all probability, be more than offset by the increasing proportions of college-age youth serving in the Armed Forces."

"Obviously, there will not be enough engineering graduates to meet the expected defense and civilian needs, at least until the mid-1950's, and probably for some time thereafter. Both the mobilization program and the long-term growth of the profession point to a continuing high demand for engineers. This can be met only if the proportion of high-school graduates who decide to prepare for the profession is much larger in the next few years than in 1950 and than before the war."

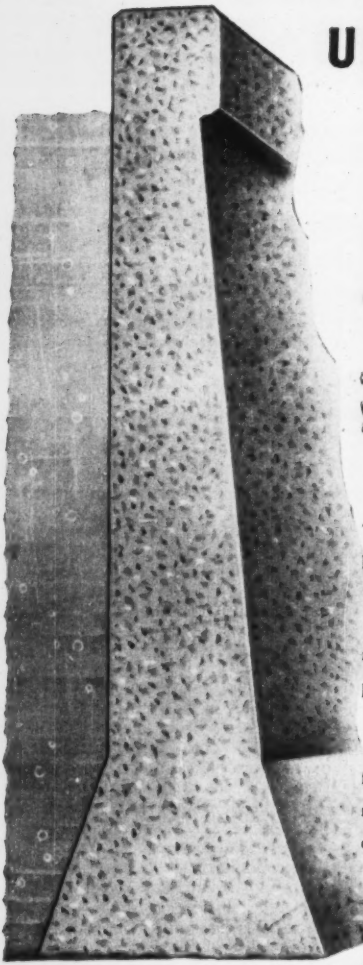
• **Estimates of future graduates**—These estimates of the future supply of engineers are more optimistic than estimates made recently by the Engineering Manpower Commission of Engineers Joint Council. In a report for the commission, S. C. Hollister, president of the American Society for Engineering Education states that the number who will graduate between now and 1956 can be closely estimated as the men who will graduate either are in college or have applied for admission. Dean Hollister expects the number of graduates to decline until 1956, and he sees no prospect for any sharp increase until after 1960.

Dean Hollister states that a substantial increase in graduates from engineering schools is not expected during the next decade because the high schools are not expecting any large increase in graduates. Before the war, he adds, nearly 6 percent of the boys graduating from high schools entered engineering colleges. Now the rate has dropped to 4.8 percent. About 10 percent would be needed to meet civilian peacetime demands alone.



THE NUMBER OF WORKERS PER ENGINEER is declining steadily, indicating that the need for engineers is expanding at a more rapid rate than that of the nation's industrial expansion. (Bureau of Labor Statistics chart)

For Watertight Walls . . .



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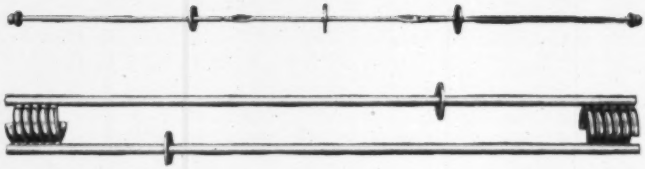

The form tie used for water tight walls must, of course, be leak proof. The type of tie which is truly leak proof is determined by the anticipated height of head, and the resultant pressure.

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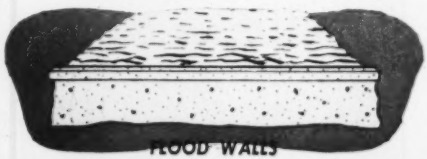

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READER COMMENT

Precast pipe, not tunnel

Sir: In the article "Cleveland Drinks Lake Erie's Waters Through New $21,000,000 System," (ENR Nov. 1, 1951, p. 43) the second sentence states: "It is a tunnel 10 feet in diameter which runs nearly 3½ miles under water and another 1½ miles underground, etc."

Having supplied the 18,500 feet of 120-in. diameter reinforced concrete subaqueous pipe for this system, which was installed by Merritt, Chapman and Scott, it is, of course, disappointing to us that your article should erroneously describe the intake as having been a tunnel.

ELLIOTT E. BRAINARD
Vice President
LOCK JOINT PIPE COMPANY
East Orange, N. J.

EDITOR'S NOTE: Our apologies to Lock Joint and a reprimand to ourselves for forgetting that ENR described this remarkable pipe-making and intake job in a five-page article Nov. 25, 1948, p. 52.

Contractor responsibility

Sir: In your editorial "Contractor's responsibility" (ENR Sept 20, 1951 p 21) you say, "Legally, a contractor assumes no responsibility for the engineering soundness of a project he contracts to build. This is solely the engineer's." I think you will find that this is in error.

In law, a contractor is presumed to be as good an engineer as any engineer he works for. He undertakes to build work soundly and completely. The assumption that the responsibility for design is the engineer's would presuppose that a client examines the engineer's financial position in the same way as he does the contractor's, which of course, is not the case. The engineer is, in fact, the employer, stating what, in his opinion, is required to achieve a certain goal. The contractor contracts to implement the employer's final goal or objective. He may enter into a lump sum contract where he has to implement this even beyond the tender design at his own expense. On the other hand, his contract may allow him a claim to payment for all necessary work done.

Of course, I do not know the contract conditions of the tunnel, which has given rise to this discussion, but in general, if it is a lump sum contract, the contractors would be responsible if the lighter section failed, and would be less involved because he had pointed it out. If, on the other hand, the contract is on the measurement of all necessary work, the contractor would be well advised to build to the heavier section, although his difficulty would be to prove its necessity, in which he might be helped if he built a short length in the lighter section in the confidence that it would fail, and thereby substantiate his claim.

In brief, if a contractor tenders on an absurd design, showing, say, a beam 6 in deep over 100 ft, he has either, according to his contract, got to put in the right depth at his own expense, or on a measured contract put in the right depth beam and claim for the necessary extra material. He would not improve his case by pointing out insufficiency of the depth but at the same time building it accordingly.

OWEN WILLIAMS
Sir Owen Williams and Partners
London, England

Glazed-brick colors

Sir: We have noted with interest the unusual use of bright red, sand-molded glazed shale brick in the General Motors Technical Center near Detroit, as described in ENR Nov. 1, p 55.

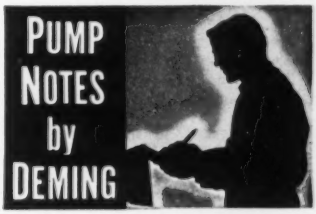
As you point out, glazed brick is usually made of extruded fire clay, but we would like to take issue with the statement: "choice of colors is small." Glazed brick is produced by members of the Facing Tile Institute, which is affiliated with The Structural Clay Products Institute. Five of the thirteen leading manufacturers who constitute the Facing Tile Institute make glazed brick in the following thirteen colors: White, ocular green, light gray, blue, ivory, white mottle, sunlight yellow, gray mottle, coral, cream mottle, tan, green mottle and light green.

These basic colors were selected by the eminent color consultant, Faber Birren, as representing all that could be desired in ceramic glazed ware for all but the most unusual circumstances.

We realize, of course, that there are those cases where for some unusual architectural effect the architect may elect to use a custom material, as for example, architectural terra cotta or ceramic veneer, in which products there is absolutely no color limitation.

We congratulate General Motors, the architect, and the manufacturer on the new research center. We believe that they have produced another of the many examples of the versatility of clay products.

C. T. GRIMM
Staff Engineer
Structural Clay Products Institute
Washington, D. C.



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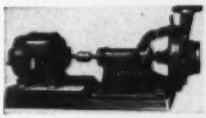
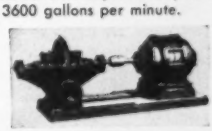


Side Suction Centrifugal Pumps with separate liquid end which can be furnished in special alloys for pumping corrosive liquids. These pumps are economical in first cost and maintenance expense. Capacities from 10 to 3600 gallons per minute.



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HOUSE CONSTRUCTION COSTS, by G. Underwood, takes up all phases of building a house—earthwork, masonry, carpentry, plastering, plumbing, etc., telling how to determine unit costs for every operation—a method applicable to all designs and local price variations. Includes structural details for many aspects of construction; compares all methods of estimating; covers drilling for wells, installing radiant heating, etc. 302 pages, 62 illus., $4.75.

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CIVIL ENGINEERING HANDBOOK, edited by Leonard C. Urquhart, Consulting Engineer and former Professor of Structural Engineering at Cornell University, covers the fundamentals, theory, and practice of civil engineering. Helps you handle all kinds of civil engineering jobs—particularly those outside your specialized field. Ten big sections discuss everything from city surveying through welding and riveting. 976 pages, over 900 illus., tables, and diagrams, semi-flexible cover, $8.50.

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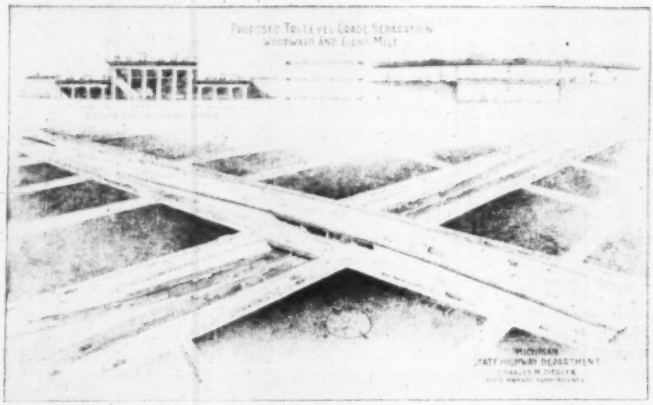

THREE-LEVEL GRADE SEPARATION—Proposed design for the grade separation of Eight-mile Road and Woodward Ave., Detroit. It is expected that final plans can be completed and contracts awarded next year. The total estimated cost of the project is $3,000,000.

Grade separation planned for Detroit intersection

The Michigan State Highway Department is planning an elaborate grade separation job for the intersection of two of its main thoroughfares—Eight-mile Road and Woodward Ave., where a recent traffic count was 55,600 vehicles in an 8-hour period between 7 and 11 A.M. and 3 and 7 P.M., with a total of 102,000 vehicles in 24 hours.

The total estimated cost is $3,000,000, including revision of utilities and provision for handling traffic on adjacent facilities which in many cases will have to be reconstructed. The structure is to be for 3 levels, Woodward Ave. traffic being carried on the upper level. All turning movements from both thoroughfares, as well as pedestrian travel, will be from the grade level. Traffic on Eight-mile Road will use the lower level, or depressed section.

The design will be of the cantilever type substructure, with steel-decked girder superstructure. There will be ample provision for pedestrian movements.

The proposed design was selected to contain the structure and approaches within the limits of the existing rights-of-way, as property in the area is very valuable. It is highly commercialized. To acquire any additional property would be expensive.

Honolulu to let Nature take its course to save money on sewage disposal

The city-county of Honolulu, T. H., has decided to stop, look and test before it puts some $3,500,000 down its sewer system for a modern new treatment plant.

Late this year it expects to begin pumping the first sewage through its new 3,400 ft, 78-in. outfall which is part of a $25,000,000 sewer improvement program. But instead of going through an expensive treatment plant that was planned for building on Sand Island in Honolulu harbor, the sewage will go into the ocean untreated.

George C. Wallace, chief of the sewer division, reasons like this:

The city's sewage now goes into the ocean untreated from two 1,200-ft. outfalls and health board checks show the beaches are safe.

The new outfall is 2 mi farther away from Waikiki Beach and farther to sea. Bottles dropped into the ocean near its mouth have been found three years later in the Philippines.

A cheap way to dispose of sewage is by dilution and Honolulu has the world's greatest diluting agent (the Pacific Ocean) at its doorstep, with currents apparently favorable to taking discharges away out to sea.

If this is the case, why spend $3,500,000 for a treatment plant that will cost $100,000 a year or more to staff and operate?

The city fathers (who earlier had approved the treatment plant) have agreed to give Wallace's reasoning a test. Temporarily, at least, they've scrapped plans for the plant, which Metcalf & Eddy of Boston designed in 1944.

The board of health will watch results carefully.

If Wallace is right, the city will save millions.

If he's wrong, it will lose only the $122,000 it cost to lay a pipe to bypass the treatment plant site. The plant can still be built later.

Meantime, operating cost, interest and amortization economies each year of delay will be substantial.

Stream clean-up closer for Potomac River cities

WASHINGTON—Clean-up of the Potomac is coming progressively closer, according to a recent progress memo its consulting engineers sent to the metropolitan area of northern Virginia.

The four jurisdictions involved: Arlington and Fairfax counties, plus the cities of Alexandria and Falls Church. The consultants are: Alexander Potter Associates, New York, and Greeley & Hansen, Chicago.

• **The problem**—A long-range plan is being drawn, for type and method of treatment of sewage and industrial wastes. It will include influences on the Potomac of the District of Columbia, as well as Montgomery and Prince Georges counties in Maryland—all pollution contributors. Present population included is 1,451,000; year 2000 estimate, 2,440,000.

To date the two sanitary specialist firms have made an evaluation of the problem, an estimate of the data. A determination of the Potomac's ability to assimilate pollution has been made. Required degree of treatment (2000 A.D.) has been set up, and the question now is: How to get it?

• **Slow process**—The need must be met by suitable stages. Should all four communities solve disposal problems independently? Is joint action the answer? Should all wastes included be piped into D. C. for treatment at enlarged existing works?

The firms expect to turn in the answer in the near future. Meanwhile, the counties Arlington and Fairfax are under order of the State Water Control Board to abate present pollution. Compliance comes in the form of 20- and 8-mgd primary treatment plants respectively—both now under construction.

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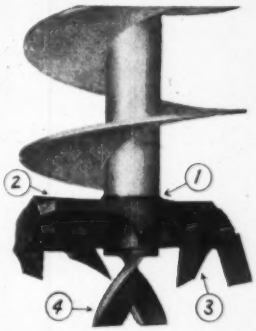

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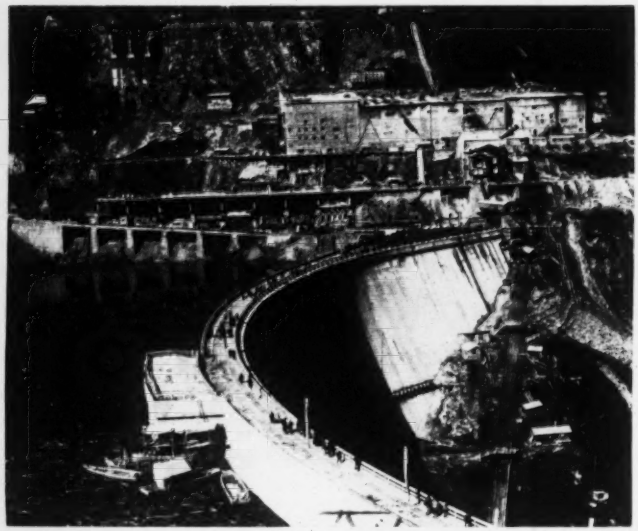


AUSTRIAN POWER DAM COMPLETED—Limberg Dam in the Austrian Alps was completed late in September. It is part of the Kaprun power project of the province of Salzburg, which was begun 12 years ago. Since the end of the war, two-thirds of the cost was supplied from Marshall Plan funds. The dam is 120 meters high (394 ft) and stores 70,000 acre-ft. From this reservoir a tunnel 12.5 ft in diameter and 4.4 miles long leads to four steel penstocks 4,000 ft long serving the Kaprun power plant. Three turbine-generator units have been installed and a fourth is planned. Two, ordered before the war, have capacity of 45,000 kw, and the new units are 55,000 kw. They operate under a head of 2,755 ft. This picture was taken from an east cableway looking toward the west cableway towers and track (top), the aggregate plant, and the plant that produced the 484,000 cu yd of concrete going into the dam.

Large extra revenues aid Colombia building

Colombia, with an area of 439,997 sq mi and a population of 11,000,000, is rejoicing in a new custom tariff which has brought the government such extraordinary revenue that the budgetary surplus at present is more than 12 percent of the total budget for 1951.

As a consequence, Finance Minister Antonio Alvarez R has announced a plan of special investments for $18,200,000 which eventually may be increased by additional investments of the International Bank of Development and Reconstruction.

Among the construction work planned are these projects:

200 schools and aqueducts, $2,000,000.

Shares for the steel mills of Paz del Rio, $1,600,000.

Housing for workers, $1,600,000.

Hospitals, $2,800,000.

Highway repair, $1,000,000.

The Colombian Minister of Public Works, Jorge Leyva, has made a request for a loan from the World Bank for Reconstruction and Development to finance the construction of a railroad along the Magdalena Valley. The total cost of the project which has been worked out by Lockwood, Kessler & Bartlett, Inc. amounts to about $40,000,000. Colombia would finance $16,000,000 of this itself and asks the World Bank for a loan of $24,000,000.

The railroad would be 220 miles long, of which 146 mi are on the right bank of the river between Capulco and Puerto Berrio. There a bridge would link the new line with the western net that goes up from Puerto Berrio to Medellin and then to Cali, Papayan and Buenaventura.

Work is scheduled to start on eight fronts in February, 1952, and is to be completed in 1955. In the meantime, Bogota is planning its future 40 years ahead. It has a pilot plan the purpose of which is to find a normal size and shape for the capital city which has been growing very irregularly for 400 years.

Private capital interests have opened suburbs far from the center of the city without adequate public services and without proper transportation. This disorderly growth is to be stopped. The new plan developed by Le Corbusier, architect; Jose Luis Sert, famous Spanish artist, and Paul L. Wiener, an Austrian.

The city plan takes into account the subdivision of Bogota into residential, commercial, industrial and cultural zones. The heart of the city is to be the civic center grouped around the future presidential palace, the government offices, the Capitalio, where Parliament meets, the cathedral, theaters and other institutions.

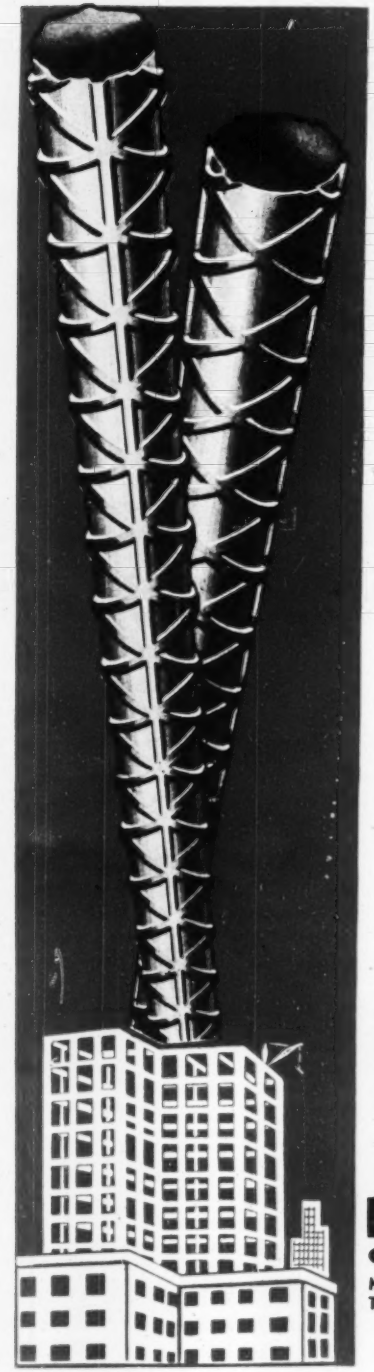
International Briefs

• **Grade crossing elimination**—Highways Minister Doucett of Ontario says he will seek aid from the federal government, from the Canadian National Railways, and from the Canadian Pacific Railway in eliminating the 5,815 grade crossings in the providence. During 1949 and 1950 there were 625 level crossing fatalities in Ontario and a large number of persons were injured. Present legislation requires that the railways bear 60 percent of the cost of grade crossings eliminations, by building over-passes or subways.

• **Melbourne tunnels**—As part of the plan to deepen the River Yarra so that bigger ships can come into the harbor of Melbourne, Australia, two 1,400-ft sewer tunnels are to be built under the river at Spotswood, Victoria. The tunnels will be more than 85 ft below river level and will go through quicksand and silt. They will have double the capacity of existing sewerage mains.

• **Public health in Syria**—Dr. Edward Cameron, head of the Connecticut Department of Health's environmental health service, has been appointed professor of public health in Syrian University, Damascus.

• **To improve Italy's roads**—The Romans were among the earliest good road builders, but now Italy needs more modern highways. A 5-year plan for improvement of national highways will be introduced shortly in a bill to be presented to the Italian Parliament. The plan calls for expenditure of 120 billion lire ($190 million) and is to be financed by a special levy against all motor vehicles, the amount to be based on the hp. The plan includes straightening of curves, improvement of road signals, and the construction of cycle and foot paths. Traffic will pass around villages.



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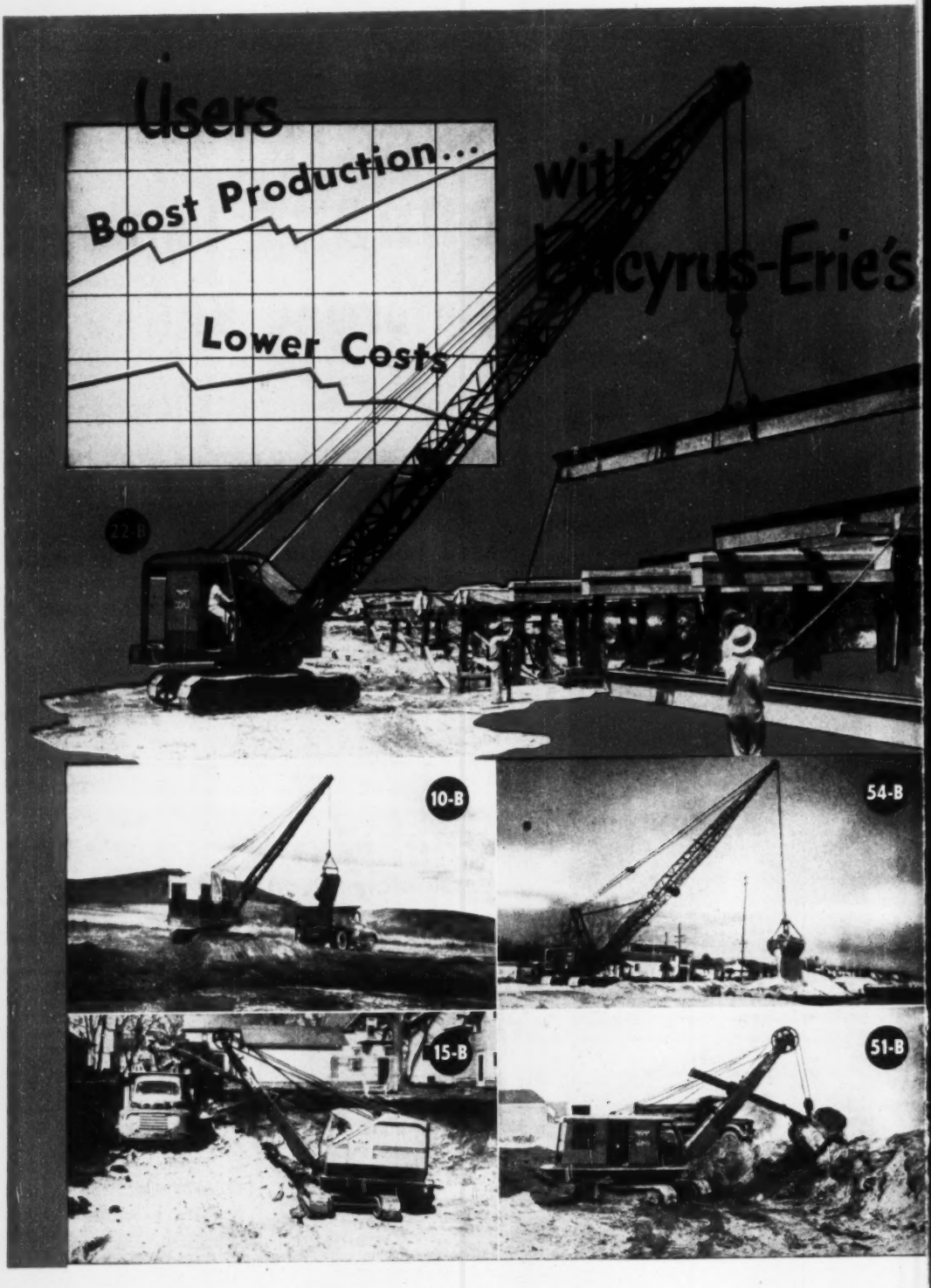
BAR NUMBER	WEIGHT	DIAMETER	AREA	PERIMETER
②	.167	.250	.05	.785
③	.376	.375	.11	1.178
④	.668	.500	.20	1.571
⑤	1.043	.625	.31	1.963
⑥	1.502	.750	.44	2.356
⑦	2.044	.875	.60	2.749
⑧	2.670	1.000	.79	3.142
⑨	3.400	1.128	1.00	3.544
⑩	4.303	1.270	1.27	3.990
⑪	5.313	1.410	1.56	4.430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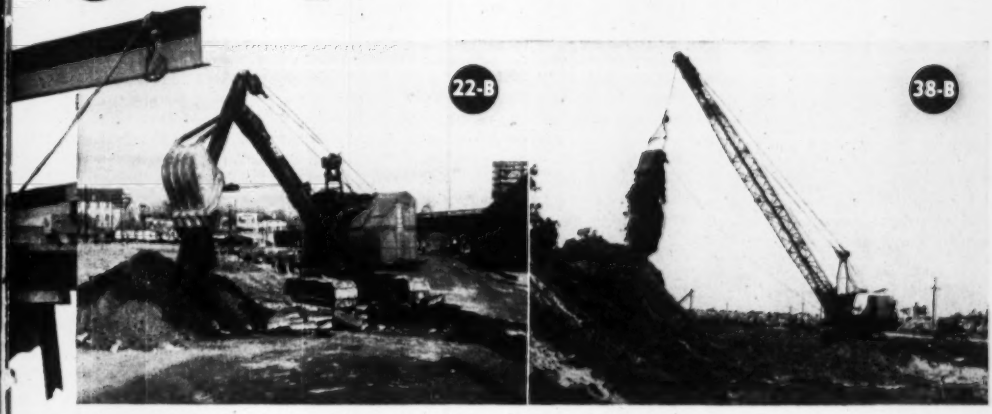

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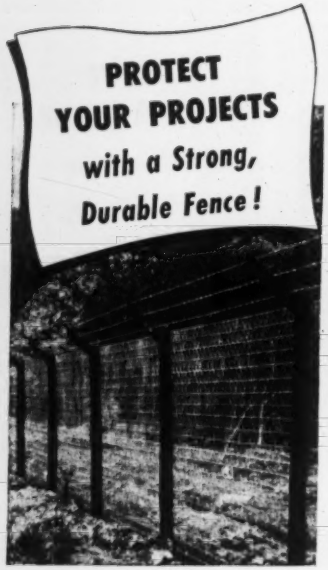

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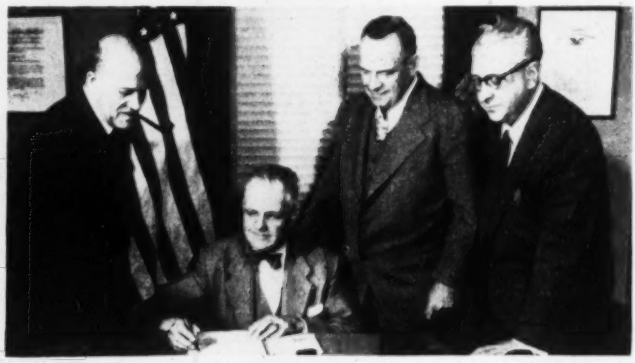


NEW BUILDING CODE—Members of the New York State Building Code Commission watch as George Bain Cummings, vice-chairman, certifies adoption of the new one- and two-family dwellings code for transmission to the N. Y. Secretary of State. The signing took place in the New York City office of the commission, at 1740 Broadway. Left to right, William Lescaze, New York City architect; Mr. Cummings, Binghamton architect; Walker S. Lee, Rochester architect and engineer; and Ralph A. Lehr, attorney of Buffalo. Col. Edward J. McGraw, Jr., New York City engineer, who is chairman of the commission, is on military leave.

SOMETHING CONCRETE COOKING—As part of lectures on "Quality Concrete," sponsored by the Constructors Association of Western Pennsylvania, an actual "batch" was mixed to show the importance of the use of the proper amount of water, cement, gravel and sand. J. W. McKnight, field engineer of the Portland Cement Association, second from left, here directs the mixing by three volunteers from the audience—left to right: Domenico J. Bonomo, cement foreman, O. H. Martin Co.; Alfred A. Valerio, superintendent, O. H. Martin Co.; and A. F. Paternel, superintendent and engineer, Ben Construction Co.

New appointments

Highway departments

J. H. Smith is secondary roads engineer, West Virginia highways at Charleston.

G. T. Bath is secondary engineer for the Wyoming highway department.

G. Y. Carpenter, Sr., U. S. public roads engineer, has been transferred from Waynesboro, Va., to the bureau's division of design, Washington, D. C.

Geo. D. Hann, Jr., is now assistant resident engineer, Virginia highways, at Lexington.

Albert L. Hambrecht is engineer in charge of the county secondary road department, Wisconsin highways.

State, city and county

Ben Nelson, city engineer at Pullman, Wash., has been promoted to superintendent of public works, to supervise water, streets, sewage and sewage disposal, and the garbage treat-

(Continued on page 56)

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on Maryland Highway Project

Schrom Construction, Division of Schrom Airport, Inc. has the contract for reconstruction of Route 5 in St. Mary's County, Maryland. The present Schroms are the second generation of the family in the contracting business. Their father supervised the laying of the first streetcar tracks in Pittsburgh, Pa. and Washington, D.C., and was also General Superintendent of the New York end of construction of the Hudson Tubes.

ON all types of construction projects Gulf quality lubricants and fuels play an important part in keeping equipment on the job—and operating efficiently.

Engineered into Gulf lubricants are greater stability and endurance—they stand up and provide better protection for contractors' equipment under every operating condition. Mud or dust—hot or cold, Gulf lubricants insure top-notch performance and help prevent mechanical delays.

Gulf gasolines and Diesel fuels are clean burning, have low carbon content, and contribute to more efficient power.

Write, wire, or phone your nearest Gulf office and arrange to use Gulf lubricants and fuels on your next job. They are quickly available to you through more than 1400 warehouses located in 31 states from Maine to Arizona. Gulf Oil Corporation · Gulf Refining Company, Pittsburgh 30, Pennsylvania.

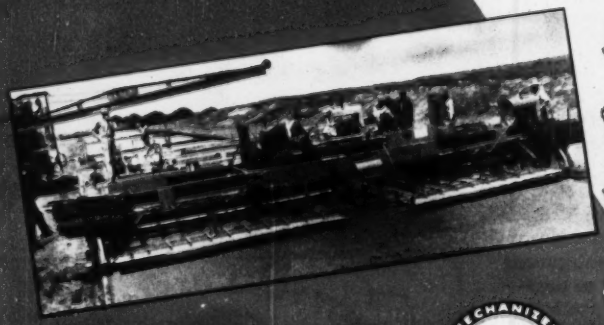
FIFTY YEARS OF SERVICE
1901 GULF 1951
PETROLEUM AND ITS PRODUCTS

"No question—Flex-Plane saved us $5000...."

"The FLEX-PLANE Mechanical Bar Installer did the work quickly and kept dowel bars evenly spaced, much to the satifaction of the engineers. There's no question that our savings were in excess of $5000 on the first job." This from C. W. Alley, Assistant Secretary of the Worth Construction Company of Fort Worth, Texas.

Wherever it has been used the FLEX-PLANE Mechanical Bar Installer has recorded savings that frequently pay for the equipment on the first job by eliminating expensive dowel holding devices, and the labor of installation; by installing bars more accurately and in better alignment; and by simultaneously installing contraction joints.

Before you start your next job look into the many advantages of the FLEX-PLANE Mechanical Bar Installer. Write *The Flexible Road Joint Machine Co., Warren, Ohio.*



MECHANIZED Flex-Plane CONSTRUCTION EQUIPMENT

Men and Jobs . . .

ment plant. **Chester Waggener,** who became Mr. Nelson's assistant two years ago upon his graduation from Washington State, succeeds him.

Roland Bourgault, Montreal, has been appointed town engineer and tower manager of Malartic, Que.

William Genther has been appointed Whatcom County engineer at Bellingham, Wash., to succeed **Ralph Knutzen,** resigned. Previously associate engineer, he was with the county from 1942-44 and since 1947.

Israel Tollman, former senior planner for the Cleveland Planning Commission, has been named to the new post of planning director for Youngstown, Ohio.

H. Roland DeVilbiss of Riverdale, Md., has been appointed deputy chief engineer for the Washington Suburban Sanitary Commission. He was graduated from the University of Maryland in 1911 in civil engineering, and was formerly with the Maryland Department of Health.

Harold B. Schultz has been promoted from chief of the bridge design branch to chief of the engineering division of the Alaska road Commission, at Juneau, succeeding **George M. Tapley,** resigned.

Corps of Engineers

Brig. Gen. A. W. Pence has been transferred from Cincinnati to Washington, D. C., to be assistant chief of engineers in the Supply and Procurement Department. **Col. Paschal N. Strong,** recently 8th Army engineer in Korea, will succeed Pence at Cincinnati as chief on Ohio River area work.

Lt. Oscar D. Williams, Jr., of Raleigh, who took his civil engineering degree from N. C. State College last June, has just been graduated from the Fort Belvoir, Va., school of engineering and has been transferred to the 16th Armored Engineer Battalion at Fort Hood, Tex.

Government agencies

Brigadier W. B. Wedd, Canada, has been named chief of the Engineering Division of the North Atlantic Defense Production Board with Headquarters in London, England.

A. C. Tilley, former Nebraska state engineer, has been appointed director of civil defense for the six-state region consisting of Colorado, Wyoming, Kansas, Nebraska, New Mexico and Missouri. His office is in Denver.

EDUCATION, RESEARCH

Rope pump experiment at University of Illinois

Water can be pumped with a length of clothesline—without pipes, valves or buckets, engineers at the University of Illinois have demonstrated successfully. The idea is centuries old, and Prof. Henry L. Langhaar and Prof. William M. Owen, reading about it in an old book on hydraulics, decided to find out whether it worked.

They built their rope pump at a cost of 98 cents—for the clothesline. The quarter-horsepower motor and other parts used were picked up around the laboratory. The clothesline spins around a couple of pulleys. The water is raised by the up-bound rope and is thrown off when it passes over the top pulley. The bottom pulley is weighted down by a piece of scrap-iron to keep the rope from tangling on the way down to pick up more water. Their pump is raising water about 25 ft—12 gal a minute—but the engineers believe it can raise it even higher.

Professors Langhaar and Owen have prepared mimeographed information sheets, with sketches, on how the pump works to answer the host of inquiries they have received from Alaska to Florida. The idea has considerable merit, they believe, for the Armed Forces, farmers and others interested in a simple pump which can be rigged up from materials found almost anywhere.

DEMONSTRATING THE ROPE TRICK—Prof. Henry L. Langhaar, left, and Prof. William M. Owen operating their rope pump at the University of Illinois.

Water penetration of soils studied

University of Nebraska soil scientists now have a way of finding out right in the laboratory how fast water will go through soil in its natural state.

They are testing a large number of samples of soil for the Bureau of Reclamation in order to determine whether or not the land is suitable for irrigation.

A core of soil 4 in. in diameter taken from the field is placed in a tube. After the cores are brought to the laboratory they are placed on brackets and water is siphoned slowly into the soil from a bottle above. The amount of water coming through the core of soil during a certain period is measured in a glass tube below.

The Bureau of Reclamation has a machine which will take a core sample to a depth of 10 ft in 15 to 30 minutes.

Most of the soils now being tested for irrigation possibilities are from the Republican Valley. Others are from the Grand Island area. Some from the Niobrara Valley will be tested in the future.

Is the steel you need loafing on your scrap pile?

The Engineer's privilege

"The engineer has the fascination of watching a figment of his imagination emerge with the aid of science to a plan on paper. Then it moves to realization in cement, metal or energy. Then it brings new jobs and homes to men. Then it adds to the security and comfort of these homes. That is the engineer's high privilege among professions."—Herbert Hoover.

Faculty News

Ralph Priestley has resigned as dean of California State Polytechnic College engineering division at San Luis Obispo, to work with Kirby and Mulvin, architects, San Francisco. Priestley was appointed dean of the division last March, having been head of the architectural engineering department since 1948.

Prof. Matthew McNeary, for the last 14 years on the faculty of the University of Maine, Orono, has been appointed head of the engineering drafting department.

Prof. Russell C. Brinker is now head of the civil engineering department at Virginia Polytechnic Institute. He has taught at the University of Minnesota, University of Hawaii, University of Southern California, and Worcester Polytechnic Institute, and has engineering degrees from Lafayette College and the University of Minnesota. During World War II, he was a commander in the Navy's Civil Engineer Corps.

Dr. Nelson L. Nemerow, recently with the Sanitary Engineering Division of the North Carolina State Board of Health and formerly a research associate in the Department of Sanitation at Rutgers University, has been appointed a specialist in industrial wastes and an assistant professor of civil engineering at North Carolina State College, Raleigh, N. C. He will teach and do research in sanitary engineering and also will work toward the control of stream pollution in North Carolina. He holds a B.S. degree from Syracuse University and obtained his masters and Ph.D degrees from Rutgers.

NEW STUDENT CHAPTER—The Fenn College, Cleveland, Society of Structural Engineers has been installed as the 132d student chapter of the American Society of Civil Engineers. At the installation dinner are, left to right, Don Reynolds, assistant to the secretary, ASCE; Prof. E. C. Harris, advisor to Fenn student chapter; Gail Hathaway, president of ASCE; Andrew G. Donovan, president, Fenn student chapter, ASCE; G. Brooks Earnest, dean of engineering, Fenn College, and director of ASCE; Prof. G. Barnes, advisor to Case Institute student chapter, ASCE; and Alfred Yanda, president, Cleveland section, ASCE.

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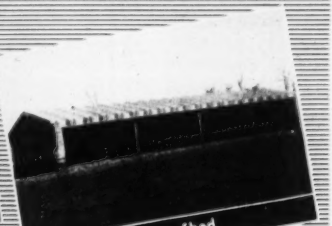
Power Company Storage Building

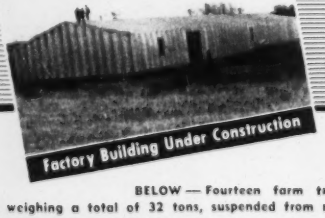
Brick Front Entrance for Office



Cattle Shed

Church-Gymnasium Building

Warehouse for Printer



Factory Building Under Construction

Imagine, if you will, a warehouse, factory addition, garage, or other similar industrial building with *every* foot of its *space UNOBSTRUCTED* and *FULLY USABLE space* . . .

No framework, no curved walls, no vertical support columns, no trusses — nothing to cause inconvenience or waste valuable room!

Think how much *more* merchandise or materials of any kind it could contain — and how much more equipment you could get in such a factory or shop!

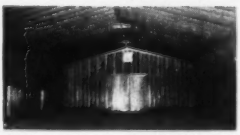
That's precisely the new kind of utility buildings that are in service today — and the number increasing rapidly.

New principles in building construction have made this possible — new principles that give promise of revolutionizing utility building construction: (a) Monocoque Construction with deeply corrugated sheet steel (or aluminum), and (b) reinforced by Roof Beam Action.

Whether a builder or an industrial operator in need of additional and immediate space, you will find it well worth your while to learn all about Behlen All-Metal Frameless buildings . . . how surprisingly quick and easy to erect, how very reasonable in cost, how completely adaptable to your particular need.

BELOW — Fourteen farm tractors, weighing a total of 32 tons, suspended from roof ridge with minimum deflection.

Complete material for a building, 40'x100'x14', loaded in a truck for shipment.



No truss members in roof. No support columns in interior. No curved walls or frame work.

Write or wire for information; or estimates on construction in which you may be interested.

Behlen MANUFACTURING CO.
METAL BUILDINGS DIVISION
COLUMBUS, NEBRASKA

Illinois roadbuilders hear:

Highways can survive under the CMP, but only through combined teamwork

The cloud of apprehension that has overshadowed the highway industry throughout 1951 is getting darker as 1952 approaches. But far from being hopeless, some aspects of the situation are better than they were.

This encouraging outlook was advanced at the 14th annual meeting of the Illinois Road Builders Association in Chicago on Nov. 9, by A. C. Clark, deputy commissioner, Bureau of Public Roads, Washington, D. C. For one thing, said he, our highways can survive under the Controlled Materials Plan, but only through the cooperation of all within the industry.

This was received with varying degrees of optimism and skepticism by the 1,072 engineers and contractors in attendance at the meeting, since first quarter 1952 allotments of structural steel for highways are less than one third of stated requirements (ENR, Nov. 15, p. 25); while estimated highway construction in 1952 will be nearly 15% less than this year (ENR, Nov. 8, p. 25).

Clark gave some sound advice for the future:

"First and foremost," said he, "our case for highways must be stated clearly and completely to officials of the DPA and the NPA, so that they may better evaluate the essentiality of each program. Moreover, it is our duty to demonstrate—as we have in the past—the true relationship of highway transportation to other essential defense programs; and the effect on them if highways deteriorate."

We must not, however, overstate our case, warned Clark. Our requirements must be sound; they must be properly phased; and the need must be real. Conservation of steel will be all important in 1952, while the conservation of construction and maintenance equipment will be essential.

• **Highway safety**—Lieut. Gen. Eugene Reybold, executive vice president of the ARBA, stressed the gravity of the conditions of our highways, as a safety factor. With safety experts predicting this year's total of deaths on the highways soaring to nearly 40,000—25% of which are attributable to imperfections of the highways—it is evident that 10,000 lives could be saved annually by modernizing our highways.

• **Illinois highways**—Illinois is entering a period of substantially improved finances for highway work, reported Robert H. Tittle, engineer of construction, Illinois State Highway Department. Increased revenues from motor fuel tax and truck license fees, plus federal allotments will give the department an estimated $154,250,000 for highway work and right-of-way acquisition during this biennium.

The lack of steel, however, will have a definite influence on the type of work to be undertaken. The accent will be on widening and resurfacing existing pavement, plus the construction of as much new concrete pavement as steel allotments will permit.

This, in turn, warned Tittle, will place a heavy demand on the suppliers of aggregates, asphalt and cement. In order to meet this increased demand for materials, some suppliers will find it necessary to enlarge their plants. Others will find it advantageous to create greater stockpiles of materials to meet peak demands. Contractors must also be prepared for Illinois' big roadbuilding program next season.

• **Chicago's street needs**—Street rehabilitation programs proposed for 1952 in the Chicago area, according to Lloyd M. Johnson, commissioner of streets and electricity, include: 57 miles of arterial streets, by the city; 46 miles of streets on State Aid Routes, by Cook County; and 66 miles of arterial highways, by the state.

This year, said Johnson, the city will spend $8,500,000 on street maintenance and reconstruction, including 510,000 sq yd of pavement repair.

• **Officers appreciated**—That the association appreciates its officers was demonstrated in the annual election: Wm. B. Crowley, secretary, Peter J. Crowley Co., Chicago, was reelected president, and Wm. A. Hasse, of McCay and Hasse, Hammond, Ind., was reelected vice president; each for the third successive year. A. B. McDonald was named secretary of the association for his 11th successive year, and Taylor G. Soper, executive secretary for his 13th successive term.

Prestressed concrete discussed at Albany

More than 300 engineers attending an all-day conference on prestressed concrete in Albany, N. Y., Nov. 17,

(Continued on page 60)

STOP
THAT LEAK
FOR GOOD

9 SIKA COMPOUNDS TO END REPAIR PROBLEMS ON CONCRETE AND MASONRY

FOR PRESSURE LEAKS
(SIKA No. 2, SIKA No. 4A) Leaks are easily sealed on the exposed side with quick-setting SIKA mortar. It is not necessary to relieve pressure. SIKA No. 2 is used against heavy pressure or bleeders, SIKA No. 4A against seepage or moderate pressure.

FOR JOINTS OR CRACKS
(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion in work above grade. SIKA CAULKING is used where highest resistance to atmospheric change is desired.

FOR EXTERIOR REPAIRS
(SIKA-KOTE, SIKA TRANSPARENTS) SIKA-KOTE, a protective and decorative coating in 9 colors and white, prevents moisture penetration on concrete and masonry structures. SIKA TRANSPARENTS render brick structures water-repellent and preserve their appearance.

FOR NON-LEAKING SURFACES
(SIKACRETE, SIKA-KOTE) Water-resistant SIKACRETE mortar is used wherever cement-coat work is indicated. Economical, easy to apply SIKA-KOTE prevents penetration of ground-moisture.

FOR GUNITING OR PRESSURE GROUTING
(SIGUNIT, SIKA No. 4, PLASTIMENT) For quick work against leaks or in tidal areas, SIGUNIT in mortar prevents washouts. SIKA No. 4 (GROUT-SIKA) accelerates set, increases cohesion of mortar and adhesion of grout to rock.

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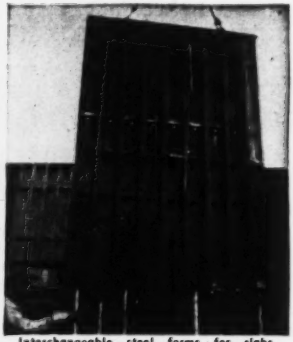
CUTS DOWN Labor Costs — STEEL Speed Forms go up faster. . . . Easily assembled with wedge bolts—No special fastenings used. Lightweight yet ruggedly built.



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SAVES TIME—A new technique —Forms can be set up, stripped, cleaned, moved and reused in half the time of other forms.

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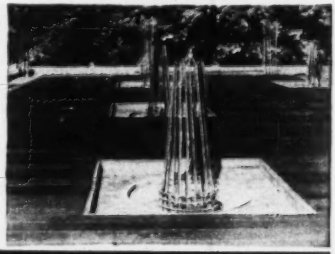

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GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

Meetings . . .

heard Bertram D. Tallamy, superintendent of the New York State Department of Public Works, urge use of prestressed concrete to alleviate the shortage of structural steel.

Possibilities of savings of both steel and concrete were brought out in a panel discussion on ways to lower costs of prestressing. Frederick S. Merritt, associate editor of ENGINEERING NEWS-RECORD, moderator of the panel, said that prestressed beams he had designed for a school building required less than 10% of the steel for rolled steel beams and less than 20% of the steel for reinforced concrete beams. Also, concrete requirements were reduced one-third. In a second building, material savings were just as spectacular, but more important, prestressed beams permitted reduction of building height two to four feet.

Also in the panel discussion, J. Nelson Hicks, business manager, Bridge Division, John A. Roebling's Sons Co., said he knew of at least 40 buildings and bridges under construction or ready to be started in the U. S. in which prestressed beams are incorporated. These include one bridge in Massachusetts, one in New York and 15 in Pennsylvania; five bridges, two buildings and two bleacher stands in Tennessee; a causeway in Florida; one bridge in Texas, two in Illinois, one in California, two in Michigan, one in Louisiana; one building roof in Virginia, one in Ohio, four in Oklahoma.

Also in the panel were John J. Hogan, regional structural engineer, Portland Cement Association; John T. Parrett, engineer, Raymond Concrete Pile Co.; Nils Thorsen, engineer, Freyssinet Co. of New York City, and L. Coff, consulting engineer.

CALENDAR

Southeastern Association of State Highway Officials, Francis Marion Hotel, Charleston, S. C., Dec. 5-7.
Southeastern Association of State Highway Officials, annual meeting, Charleston, S. C., Dec. 6-7.
Bituminous Concrete Producers Association, annual convention, The Roosevelt Hotel, New York City, Dec. 6.
Kansas Contractors Association, annual meeting, Hotel President, Kansas City, Mo., Jan. 10-11.
N. Y. Section, American Water Works Assn., winter luncheon meeting, Hotel Park Sheraton, N. Y., Jan. 15.
Highway Research Board, annual meeting, National Academy of Science Bldg., Washington, D. C., Jan. 15-18.
Canadian Construction Association, annual meeting, Royal York Hotel, Toronto, Ont., Jan. 20-23.
National Association of Home Builders, annual convention and exposition, Conrad Hilton and Congress Hotel, Chicago, Jan. 20-24.
American Road Builders Association, Golden Anniversary, Rice Hotel, Houston, Tex., Jan. 21-24.
Wisconsin Highway Commissioners and Highway Committee Members Association, winter conference, Schroeder Hotel, Milwaukee, Jan. 22-24.

OBITUARY

Robert Kingery dies, Port Authority manager

Robert Kingery, 61, of Winnetka, Ill., secretary and general manager of the Chicago Regional Planning Association and prominent in many public works projects in Illinois, died Nov. 13. Last August he was appointed a member of the new Chicago Regional Port Authority. A native of Emporia, Kan., and a graduate of Wabash College, he became a civilian engineer for the Army quartermaster department in 1918. He served as an engineer for the Portland Cement Association until 1925, when he became manager of the planning association. He was director of the state department of public works, 1933-1936. He had served as chairman of the Illinois State Planning Commission, and of the Cook County Zoning Commission and Zoning Board of Appeals. He was also a member of the Illinois Board of State Park Advisers.

Edward C. Glass Jr. 70, retired civil engineer, identified with major construction projects in the neighborhood of Lynchburg, Va., died there Nov. 7. He was educated at Virginia Polytechinc Institute.

V. L. Huffman, 74, returned dredging engineer, who lived in Omaha, Neb., from 1918 to 1948, died in Burbank, Calif., Nov. 6.

Cyril A. Hamlin, 36, for the last 3 years a member of the civil engineering staff of the Dominion Steel & Coal Corp. at Sydney, N. S., died Oct. 22.

Eugene Normal Sawtelle, 59, a delineator employed by the California Division of Water Resources for 27 years, died in Sacramento Nov. 6.

Fred Willis Haselwood, 71, who was with the California Division of highways from 1912 until his retirement in 1950, died in Redding, Calif., Oct. 27. He was district highway engineer there. Previously he was district engineer in Sacramento and assistant bridge engineer in the division's headquarters.

Oscar T. Waterhouse died Nov. 8 at his home in Hamilton, Ont. He was a superintendent for Warren Bituminous Paving Co. of Toronto for 45 years and built highways in all parts of the Dominion. During World II he worked on landing strips for airports and did municipal work for many years in the Maritime provinces.

Leroy L. Hidinger 72, Sr. president of Morgan Engineering Co. from 1920 till his retirement 10 years ago, died at Memphis, Tenn. Nov. 11. He was a graduate of Iowa State College and was a drainage engineer with the U.S. government before going into private practice.

Walter H. Owen, 48, with the U. Engineers since graduation from Mississippi State College, 1925, died at Memphis, Tenn., Nov. 11.

Paul C. Hancock, 54, retired civil engineer, died at Louisville, Ky., Oct. 28. He was a federal engineer for 30 years.

J. H. Carpenter, Jr., 62, realty assistant for the Corps of Engineers at Louisville, Ky., died there Nov. 1.

Jack Arthur Haine, 46, of Santa Paula, Calif., engineer in charge of field operations for the United Water Conservation District, died Oct. 20. He was a specialist in earthen dam construction. He had worked for Los Angeles and the Bureau of Reclamation, and had done engineering work in South America.

George C. Raymond, 66, a structural engineer in the design department of the Navy Bureau of Yards and Docks, died Nov. 8 in Washington, D. C. He had worked for the Navy for 35 years. Assigned to the Bureau of Yards and Docks in 1916 as a draftsman, he was promoted to a professional engineering grade. He worked on the designs of many of the Navy's largest buildings and floating drydocks.

Benjamin B. McKay, 67, retired general superintendent of construction at Walter Reed Hospital, died at Silver Spring, Md., Nov. 12. He had retired six years ago after 30 years of service at Walter Reed.

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"Tag Master"

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The TAG MASTER tag-line pull is uniform at all bucket levels and adjustable to fit any job. In addition, you can use your TAG MASTER as a dipper trip.

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LABOR

Productivity pay increases studied

The Wage Stabilization Board—already committed in previous statements to doing something—is now making serious study of what to do about compensation for increased production. Before his recent retirement, Chief Stabilizer Eric Johnston got himself on record with a statement that such raises are not inflationary; WSB Chairman Nathan Feinsinger even told the CIO that productivity wage raises are more desirable than maintaining a lower wage, without increased productivity.

And of course some such raises have already gotten government approval—the four-cent annual improvement factor in the General Motors and other auto industry contracts.

The problem facing WSB now is how to extend the privilege to cover other types of productivity increase plans and how to regulate them. WSB is considering appointing a committee to study this question—as it has done on pensions and welfare plans and salesmen's commissions.

• **History**—The story on productivity increases goes back to Feb. 27, when Johnston, in a letter (aimed at wooing labor members back to WSB) asked WSB to develop policies on "other ways to increased earnings and benefits to workers." One of these "ways" was productivity.

At this request, WSB approved the annual improvement factor increase in effect before the wage freeze. But it has done nothing about new annual improvement plans or other types of productivity increases.

But, although it said it was studying the matter, WSB really wasn't doing much more than worrying about it. In the middle of August, WSB member Walker (labor) moved to bring the question to a head by calling on WSB to approve a policy permitting increases resulting from more efficient production.

• **Publicity**—This resolution got little public notice until last week, when it was publicized in the Labor's Monthly Survey (the AFL's economic bulletin) as a new wage policy proposal by AFL that could "solve the dilemma by giving workers a chance to advance their wages without causing a new inflation spiral—accomplishing the real purpose of wage stabilization."

Both Johnston and Feinsinger followed up this publicity with talks to the CIO and statements to the press apparently favoring the proposal.

• **Problems**—Favoring productivity increases and administering them, however, are two different things. In his pronouncements, Feinsinger noted these problems:

1. Should WSB approve all productivity clauses in effect before the wage freeze? Among other things on this question, it will have to consider the effect on industrial peace.

2. If WSB approves pre-freeze productivity clauses, would it be fair not to approve new ones for other workers and companies?

3. If it approves new clauses, what kind should they be and what conditions should be attached—how would you prove more or better production.

Buffalo airport work stops over dispute

The combined efforts of the federal government and the city of Buffalo were brought to bear last week on a stalemate involving labor and contract procedure that has halted work on improvement of a runway at the municipal airport.

The center of contention is a $20,810 low bid for rebuilding the runway, submitted by the Margold Electric Co., Inc., Yonkers, N. Y., and certified by the Civil Aeronautic Authority.

Although Margold has said it would abide by the specifications in the contract and pay prevailing wages (also specified), the local of the International Brotherhood of Electrical Workers declared it could not provide skilled electrical workers because the contractor is not "in signed agreement" with the union.

Efforts to get union and company officials together have been unsuccessful so far.

Ban Arizona plumbing strikes

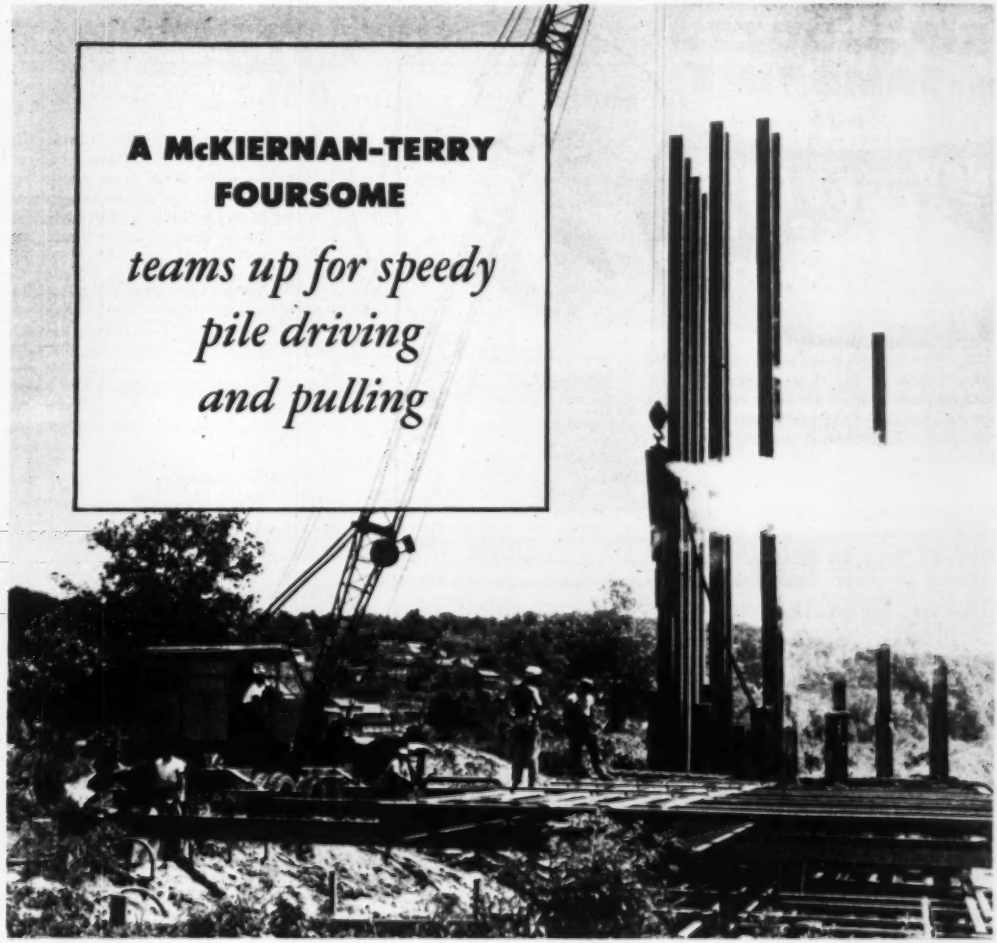
AFL plumbers and their employers have signed a five-year contract which bans strikes during the life of the contract.

About 1,500 plumbers are covered by the agreement, which also provides for continuation of the present base pay of $2.50 an hour, with an escalator clause to give cost-of-living pay boosts twice yearly if indicated by rises in the BLS cost of living indexes.

Labor briefs . . .

• **Virginia seeks men**—The Virginia State Highway Department said it is

(Continued on page 64)



A McKIERNAN-TERRY FOURSOME

teams up for speedy pile driving and pulling

Here's bridge-building teamwork . . . McKiernan-Terry style! On the new Housatonic Bridge connecting Derby and Shelton, Conn., four pieces of McKiernan-Terry equipment were teamed up by the contractor for fast pile driving and extracting.

McKiernan-Terry 9-B-3 and 10-B-3 Double-Acting Hammers drove 40 to 65 feet steel piles to refusal in rock for four piers and the east abutment. Piles were punched down on a 1 in 6 batter from large crane rigs.

Cofferdam steel piles, 40 feet in length, were driven by a McKiernan-Terry Double-Acting No. 7 Hammer and quickly removed with a McKiernan-Terry E-4 Pile Extractor.

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MK 311

A McKiernan-Terry Pile Hammer driving steel foundation piles for the Housatonic River Bridge from the 80-ft boom of a truck crane. Mariani Construction Co. was the contractor.

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Storage building at Fairless Works, Morrisville, Pa. 25,000 sq. ft., built by Howard.

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Office building at Fairless Works, Morrisville, Pa. 25,000 sq. ft., built by Howard.

continuing its drive to obtain personnel in all classifications from laborer to graduate engineer. In the past month, the department has hired 60 men, after screening 234 applications.

• **Michigan painters up**—Painters in Oakland, Wayne and Macomb counties, Michigan, have been granted a 12½ cent an hour wage increase, retroactive to the first payday after Nov. 1. The boost brings hourly base to $2.47½.

• **City workers get more**—Wages of 90 construction trades workers employed by the city of Toledo, Ohio, will go up shortly, with approval by the city council of recommendations that increases should go through. The raises will be in addition to cost of living increases totalling $525 put through in the past year.

• **Uses handicapped**—General Shea-Morrison, contractors at Hungry Horse Dam, have reported excellent results in the hiring of handicapped workers—many of them maimed as a result of wounds in World War II. The men are working as machinists, electricians, machine operators.

• **Rochester concrete wages**—Wage increases have been granted to 175 employees of 15 firms affiliated with the Rochester (N. Y.) Concrete and Aggregate Association. Men will get a raise of 5 cents an hour Jan. 1, and 10 cents an hour April 1, if WSB approves.

• **Houston bricklayers boosted**—Between 800 and 900 bricklayers in the Houston area have been granted wage increases of 15 cents an hour—the second boost in a few months—to bring their wage to $3.17½ an hour.

• **Resignation**—An industry member of the Wage Stabilization Board, G. Maynard Smith of Atlanta, has submitted his resignation effective Dec. 1. Smith served on the board since last June when he succeeded Rueben Robertson on the industry panel of the three-sided board.

• **What's rate?**—The Hamilton, Ont., Board of Control refused to be drawn into union-management disputes over prevailing rates for front-end loaders, despite a direct union appeal. When local operating engineers asked the board to include in city contracts fair-wage clauses what they claimed to be the prevailing wage, board members told the union to deal with contractors, if they wanted to obtain any rate adjustments. "If that's the rate you want," said Mayor Jackson, "get busy and see it becomes the prevailing rate, instead of bothering us."

BPR allocates $500 million road funds

WASHINGTON—A total of $500 million has been authorized as federal aid to the states for highways in the fiscal year beginning July 1, 1952. The $500 million is divided as follows: $225 million for projects on the federal-aid highway system, $150 million for projects on the federal-aid secondary system, and $125 million for projects on the federal-aid highway system in urban areas.

• **BPR supervises funds**—Funds will be spent under the supervision of the Bureau of Public Roads. State highway departments will propose projects, prepare plans, award contracts and supervise construction.

Federal participation is limited to half the cost, except in the public-lands states. There, participation may be increased above 50% by one-half of the percentage of the area of the state that is public land.

• **How money is allocated**—Funds for the federal-aid highway system are apportioned in proportion to area, population and mileage of post roads, each being given equal weight.

For secondary federal-aid roads, the funds are apportioned in the same manner except that rural population is used, rather than total population.

Funds for urban projects are apportioned on the basis of population in municipalities and other urban places of 5,000 or more.

The funds now authorized will be available for expenditure until June 30, 1955.

• **Who gets what**—The state of New York gets the biggest single allocation—$30.7 million. This includes $10.4 million for the federal-aid highways, $4.1 million for secondary roads, and $16.2 million for urban highways.

Texas gets the second-largest allocation. The Lone Star state's $29.7 million includes $14.3 million for federal-aid highways, $9.6 million for secondary roads, and $5.8 million for urban highways.

Funds authorized for California total $26.2 million. Included are $10.2 million for federal-aid highways, $5.2 million for secondary roads, and $10.8 million for urban highways.

Others which received $15 million or more include Pennsylvania, $23 million; Illinois, $21.6 million; Ohio, $19.4 million; and Michigan, $16.7 million. Smallest allocation went to Vermont—just under $2 million.

15 power firms get quick amortization

WASHINGTON—The Defense Electric Power Administration last week certified four industrial power project and 11 electric utility power projects for accelerated amortization.

They bring total DEPA approvals since July to 72 covering an estimated cost of $705 million. Of this $684 million was eligible for fast write-off, but only 44.9% recommended.

Projects certified last week by DEPA were granted write-offs from less than 10% to 65% of total investment new facilities. Included are:

Power plant for Union Carbon & Carbide Co. at Marietta, Ohio—$33 million; steam electric stations for Public Service Co. of Colorado at Arapahoe and Grand Junction—$25 million; steam electric station for Pennsylvania Power & Light Co. at Sunbury—$24 million; steam electric station for Pennsylvania Power Co. at New Castle—$13 million; electric station and transmission lines for Central Illinois Light Co. at Wallace—$12 million; steam electric plant for Dow Chemical Co. at Midland, Mich.—$10 million; electric station for Montana Power Co. near Billings—$5 million.

• **Permits**—Other power news this week concerned hydro-electric projects in Montana and Wisconsin.

The Federal Power Commission granted a six-month preliminary permit to the Montana Power Co. for a hydro-electric project on the Clark River in Sanders County.

The Commission also granted a 50-yr license to the Winter Electric Light and Power Co. for a hydro-electric project on the east fork of the Chippewa River, Sayer County, Wisc.

Lead supply getting tight, imports down 50% from '50

WASHINGTON—Lead has now become one of the "problem" materials. Although it seemed to be in ample supply in mid-summer, the supply has tightened up to the point where November requests for the metal exceed supply by five times.

The main factors are sagging imports, reduced domestic production and inadequate scrap lead collection.

Normally, imports, domestic mine output, and secondary production each account for about one-third of the lead use of the United States. But

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the pattern of distribution is now distorted because of the dearth of imports.

Lead from foreign sources this year is less than half of what it was last year.

• **Price problem**—Major factor in the lead supply problem is U. S. price ceiling. World prices are four to five cents higher than the 19 cents a pound domestic users can pay. As a result, much of the lead that would normally go to the U. S. is being diverted to other countries.

Strikes have also cut domestic production and scrap is not getting to the mills at a fast enough rate to meet demands.

• **The outlook**—Lead experts feel that the present shortage will be a problem for at least another six months, maybe longer. Expansion in mine output may help on a long-term basis, but the earliest boost in this quarter won't come until 1953-54.

Business briefs . . .

• **Planning loans**—The housing and Home Finance Agency has announced a $46,418 loan for planning redevelopment of a 128 acre area in Memphis, Tennessee. The area now contains substandard housing and will be redeveloped for both residential and commercial purposes.

• **Scrap flow improving**—Copper, lead and zinc scrap flow to the mills has shown its first improvement in months, but the increased flow is still only a trickle of what is needed to maintain high production rates for the scarce materials.

• **Earlier filing**—The Defense Transport Administration now asks that applications for construction materials be filed 105 days ahead of the quarter in which they are to be used. That means filing before Christmas for materials to be used in the quarter starting April 1, 1952. DTA handles construction applications for railroad, truck, bus, inland waterways storage and port facilities—but not for highways or airports.

• **Three year expansion**—Shell Oil Co. has announced a three-year expansion program at its Wood River, Ill. refinery. The National Production Authority has granted the company certificates of necessity for rapid tax amortization for the project—which will cost $42.5 million.

• **Public housing funds**—The Public Housing Administration reported sale of temporary loan notes totaling $45 million to finance low-rent public housing in Chicago, Boston, Los Angeles, Hoboken, New Jersey, and San Antonio, Texas.

UNIT PRICES BID BY CONTRACTORS

Paving, landscaping, R. I.

For 1.045 mi of 8" reinforced concrete pavement, 48-ft wide, landscaping and bridge, the State of Rhode Island and Providence Plantations, Department of Public Works, Division of Roads and Bridges got six bids on May 23, 1951. To the contract total of $683,073, the State adds 10% for engineering and contingencies and $108,000 for right-of-way for a total cost of $859,370.

Work started June 21, 1951 and is to be completed in the spring of 1952. The contractor furnishes all materials including trees and shrubbery. Railroad is 10 mi from job.

Wage rates range from $1.75 for common labor to $2.125-2.875 for skilled. The bidders included:

1C S. & M. Constr. Co., Inc., Providence, R. I. $683,073
2 M. A. Gammino Constr. Co., Providence, R. I. 686,949
6 L. Romano Constr. Co., E. Providence, R. I. 790,089

	Road & Landscape	Culvert	Bridge	Total
1C	$521,290	$38,293	$123,490	$683,073
2	522,651	43,978	120,319	686,949
6	615,587	42,315	132,187	790,089

Bids: 5-23-51 Items	Unit	Quantity	Unit prices 1 C	2
Clear & grub	ac	18.21	$350.00	$350.00
Cl & gr for loam salvage	ac	1.1	350.00	300.00
Marsh and/or muck exc	cy	855	0.50	1.00
Uncl exc	cy	113,394	0.65	0.59
Loam or topsoil exc	cy	7,077	0.40	0.40
Trench earth exc, 0-17' d	cy	4,192	1.50	1.50
Trench earth exc, 7-12' d	cy	21	2.50	3.00
Trench ledge exc, 0-7' d	cy	516	4.00	7.00
Trench ledge exc, 7-12' d	cy	6	10.00	15.00
RD unit B, RCC pave	cy	3,203	1.00	1.00
RD unit E, drop inlet	ea	1	5.00	10.00
RS unit F, 15" CI pipe	lf	138	0.30	0.25
RD unit F, 12"-18" CM pipe	lf	277	0.30	0.50
Scarify-reshape exist pave	sy	1,906	0.20	0.20
Borrow outside loc, common	cy	185,491	0.48	0.48
Ovhl on borrow, $0.02 per 1,000'	cy	185,491	0.04	0.04
Bedding or fndn fill, type A	cy	32	1.00	3.00
Gray fndns, type A	cy	13,492	0.60	0.60
Repl loam or topsoil	cy	4,831	1.00	0.75
Repl marsh and/or muck exc	cy	388	2.00	1.00
Trimming & fine grad	sy	141,635	0.08	0.10
Gravel base course	cy	249	0.75	1.50
Cr stone, grav base crse	ton	7,757	2.25	1.50
Filler for base crse, sand	cy	1,955	1.75	1.50
Bit conc surf, F-2 w/ st seal	sy	1,492	0.70	0.70
Asph conc surf, I-1	sy	31,029	1.10	1.10
Reinf c conc pave	cy	6,632	13.25	14.25
FHH&A bit matl, RT-2, tack coat	gal	12,358	0.19	0.14
FHH&A bit matl, RC-3, seal coat	gal	442	0.16	0.14
St bar reinf, untr	lb	10,673	0.11	0.14
treat-support-sleeved	lb	10,977	0.20	0.16
1-2" rd	lb	77	0.15	0.20
Steel reinf, mesh	sy	31,734	0.35	0.35
Cement conc masonry	cy	9	50.00	50.00
FL 12" CI A pipe, RCC	lf	4,109	2.05	2.20
FL 15" CI A pipe, RCC	lf	150	2.35	2.50
FL 18" CI A pipe, RCC	lf	38	3.05	4.00
FL 24" CI A pipe, RCC	lf	450	5.05	4.75
FL 12" CI B pipe, CS	lf	1,649	1.32	1.30
FL 18" CI B pipe, CS	lf	1,448	2.70	3.10
FL 24" CI B pipe, CS	lf	44	4.75	4.75
FL 12" ACCM pipe	lf	572	2.26	2.30
Drop inlets, #14-A, comp no inl st	ea	9	150.00	150.00
comp "S" inl st	ea	4	150.00	160.00
Reconst CB to mh, #56 F&C	ea	1	100.00	100.00
CBs "D" H&B, #53 F&C & GIS	ea	25	110.00	120.00
CBs "D" H&B, #53 F&C & "S" IS	ea	9	125.00	100.00
CBs "D" H&B, #53 F&C, SI & GIS	ea	1	175.00	190.00
CBs "F" H&B, #38 F&C, GAIS	ea	24	145.00	90.00
CBs "F" H&B, #38 F&C no inlet st	ea	15	115.00	70.00
CBs "F" H&B, #38-#fig F&C no inl st	ea	3	$125.00	$80.00
CB "F" H&B, #38 F&C GAIS & sp base	ea	1	150.00	150.00
MH, #20, H&B, #59 Head, #37-A F&C	ea	1	100.00	100.00
MH, #20, H&B, #57 Head, #56 F&C	ea	6	110.00	120.00
8" vert wall comp perim for CBs	Vlf	449	21.00	22.00
MHs	Vlf	32	21.00	22.00
12" vert wall comp perim for CBs	Vlf	34	36.00	40.00
Gran curb, QS, str, #35-A	lf	4,922	2.90	3.00
circ, #35-A	lf	316	3.75	3.80
2' R corn, #35-A	ea	16	15.00	14.50
C conc curb, pre, "S," str, BH	lf	12,898	2.05	2.10
circ, BH	lf	298	2.05	2.10
Bit conc lip curb	lf	10,399	0.30	0.50
Bit conc sidewalks, CI "I," w/fdn	sy	1,350	1.75	1.50
Gu rail, st pl, wood posts	lf	5,700	2.60	2.70
Gate for spec bnd fence	ea	1	150.00	160.00
Spec bndry fence w/conc posts	lf	9,407	2.00	1.50
Temp sheath & brac	Mfbm	3.5	100.00	100.00
FS calcium chloride	ton	5	75.00	70.00
Refl units, post mntd type	ea	64	7.00	8.00
Service bridges	ea	10	40.00	40.00
Traf watchmen or flagmn	Mhr	3,000	1.25	1.20
RR mail box posts-mtgs	ea	3	10.00	5.00
Seeding, slope areas	sy	29,153	0.05	0.09
Seeding, park areas	sy	8,149	0.05	0.10
Trtmnt areas to be mtchd	sy	43,982	0.10	0.12
FD seed, park mix A	lb	245	0.70	1.00
slope mix A	lb	605	0.60	1.00
spec mix for mulch	lb	880	0.76	1.00
FD fertilizer, comm 8-6-4	lb	16,264	0.035	0.04
agri lime	ton	13.25	20.00	22.00
FD mulch, hay-crop waste, etc	ton	18	38.00	50.00
FP trees, 3" Gleditsia Triacan	ea	9	15.00	35.00
4-5 Cryptomeria Jap	ea	4	12.00	25.00
8-10 Mixed Oaks	ea	40	9.00	20.00
8-10 Sugar Maples	ea	10	9.00	20.00
8-10 Hickory	ea	7	9.00	20.00
5-6 Malus, Selected	ea	3	10.00	20.00
FP shrubs, 10"-12" Taxus Cuspid	ea	70	4.00	8.00
2-3 Taxus Cuspid Cap	ea	3	6.00	12.00
12" Kalamia Latifolia	ea	1,770	1.30	1.50
Rosa Wichuriana	ea	600	1.10	0.75
FP Vines, Wistaria Varieties	ea	12	3.50	3.00
Hydrangea Petiolaris	ea	4	2.00	5.00
Schizoph Hydrangea	ea	4	1.50	3.00
Boston Ivy	ea	8	2.00	2.00
Euonymus Radicans	ea	4	1.00	1.00
FD fertilizer, 5-8-7	lb	3,000	0.035	0.05
Sp low Ph plant food	lb	2,000	0.035	0.05
Ground dolomitic lime	ton	1	8.00	20.00

Culvert no. 326

Uncl ditch exc at culv	cy	3,750	1.00	1.50
Uncl struc exc & bkfl	cy	1,295	2.00	2.50
Str conc msry, CI "A", arch, etc	cy	336	59.00	60.00
CI "B," ftgs	cy	315	29.00	35.00
Str conc surf finish, rubbed	sf	910	0.30	0.25
Bar reinf, fur-fabr-pl	lb	17,335	0.12	0.14
Waterprfg-mopped, 3 coats	sy	641	1.00	1.50

Centerville road bridge no. 425

Uncl tr earth exc & bkfl	cy	45	4.00	5.00
Temp by-pass road	ls		1,500.00	1,500.00
Asph conc pave, type I-1"	sy	664	1.25	1.50
C conc pipe, 8", cl A	lf	100	3.00	3.00
CI gutter inlet boxes, compl	ea	2	200.00	150.00
Gran curb, QS str & circ 6x10	lf	275	5.00	4.50
QS str & circ 6x18	lf	246	4.00	3.50
QS 20' rad, 6x18	lf	18.5	5.00	4.00
QS 5' rad, 6x18	lf	12	5.00	4.50
Prec conc curb, slope faced	lf	122	3.00	2.20
Traf watchmen or flagmn	Mhr	3,000	1.25	1.20
Uncl struc exc & bkfl	cy	1,750	2.50	1.50
Ea fill-select borrow	cy	765	1.00	1.50
Struct conc msry, cl AA, deck	cy	195	59.00	65.00
cl A, footings	cy	554	29.00	24.00
walls, etc	cy	718	43.00	45.00
walks, slabs	cy	96	28.00	25.00
curb, etc	cy	22	30.00	60.00
Exp jnts, fur-fab-set	ls		1,700.00	1,900.00
Struct conc surf fin, rubd	sf	10,795	0.30	0.20
Bar reinf, fur-fab-pl	lb	128,783	0.12	0.11
Struct. st, fur-fab-er-pnt	ls		21,500.00	20,000.00
Bearings, incl bolts, f i p	ls		2,400.00	2,400.00
Pipe br rail, WI, comp	lf	348	4.00	7.00
Perf wall drns, 8" VC pipe	lf	265	3.00	2.50
Waterprfg, mopped, 3coats	sy	1,132	1.00	1.50

* RD remove-dispose
* FS furnish-spread
* FIP furnish-install-paint
* RS remove-salvage
* FP furnish-plant
* RR remove-replace
* FL furnish-lay
* FD furnish-deliver

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Connecticut—B.A. 12/3—State Hy. Comr., State Office Bldg., Hartford, 3,170 lin. st. storm sewer, Rt. 8, Shelton. Plans deposit $2.20.

† **Me., South Portland**—DISTRIBUTION SYSTEM—B.A. 12/4—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., repairing steam distr. sys. at U. S. Naval Reserve Training Center, NUY 2959Q, Spec. 30312. Plans deposit $10.

† **Mass., Falmouth**—TRANSMITTER and RECEIVER BLDGS.—B.A. About 12/11—U. S. Eng., 857 Commonwealth Ave., Boston, transmitter and receiver bldgs., Otis Air Force Base, Eng. 19-016-52-17. CD 11/14.

Conn., Hartford—B.A. 12/20—City, Municipal Bldg., 550 Main St., Contr. E 5189, incinerator, North Meadows near edge of Connecticut River. Extended date. CD 10/15.

BIDS ASKED BUILDINGS

Mass., Newton Highlands (Br. Boston)—SCHOOL—B.A. 12/1—City of Newton, School Dpt., 40 Elm Rd., Newton. Countryside Elementary School, $500,000. Plans deposit $25. Cram & Ferguson, 248 Boylston St., Boston, archts. CD 10/24.

▲ **Mass., Waltham**—HOSPITAL—B.A. 12/7—State Dpt. Mental Health, 15 Ashburton Pl., Boston. M-201, Contr. 1, building for psychotic children, Metropolitan State Hospital. $1,000,000. Gordon Robb, 551 Boylston St., Boston, archt. CD 10/31.

Mass., Milton—DORMITORY—B.A. 12/18—St. Columban's Foreign Mission Society, 1372 Brush Hill Rd., (selected list bidders), 4 story, rein.-con., brick dormitory and classroom bldg. William A. Govelen, 120 S. Grove St., Elgin, Ill., mech. engr. William Schmidt, 2048 W. Addison Ave., Chicago, Ill., struct. engr. CD 11/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta.

The Bridge Constr. Corp., 341 Water St., Augusta, Me. LB $315,042, bit. macad. 1.501 mi. F.A. Proj. F 044-2 (2) "N" Calais. LB $132,636, bit. macad. 1.342 mi. F.A. Secondary Proj. S 0110 (1), A-2, Sanford and Shapleigh.

P. E. Susi & Co., Pittsfield, Me. LB $301,070, conc. 3.917 mi. F.A. Proj. S 0210 (2), S.A. No. 1, Dixmont. Bids Nov. 14. CD 11/7.

† **St. Paul Constr. Co.**, 603 Boylston St., Boston, Mass., CA $750,000, classroom bldg., etc., Municipal Airport, BURLINGTON, VT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass.

Chelsea Engineering & Constr. Co., 85 Garfield Ave., Chelsea, Mass. LB $146,369, sewers and hy. constr., CHELSEA, MASS. City, Street & Sewer Dpt., City Hall, Chelsea, Mass. CD 2/26/47.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John Bowen Co., Inc.**, 171 Boston St., Boston, Mass. CA $11,179,526. Contr. 2, Chronic Disease HOSPITAL and NURSES HOME, Forest Hills, BOSTON, MASS. State, Dpt. P. Health, State Hospital, Boston, Mass. Awarded Nov. 13. CD 10/11, under LB.

▲ **Vara Constr., Inc.**, 718 Huntington Ave., Roxbury, Mass. LB, $1,115,000. HOSPITAL. Lynnfield St., LYNN, MASS. Union Hospital, 25 Linwood Rd., Lynn, Mass. Bids Nov. 14. CD 10/23.

L. M. Witherell & Sons, 29 Court St., Taunton, Mass. CA $300,000. COURT HOUSE alterations, TAUNTON, MASS. Comrs. Bristol Co., 9 Court St., Taunton, Mass. Carlton H. Manter, 246 Weir St., Taunton, Mass. CD 10/23, under Mass., New Bedford.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New York—B.A. 12/4—At office Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, stream channel clearing and bank protection 1.11 mi. East Branch-Sullivan Co. line, Pts. 1 and 2, S.H. 5383, "S140, Liberty Co. line, Pt. 2, S.H. 5234. Contr. No. R. C. 51-83. Delaware and Sullivan Counties, $65,000. Plans deposit $10.

† **Md., Fort George Meade**—HEATING SYSTEM—B.A. on or about 12/7—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore, Zone 3, addn. to heating sys. Personnel Center Warehouse Bldg. T-503, midway between Baltimore, Md. and Wash., D. C. in Anne Arundel Co., Md., Eng. 18-020-52-15. CD 5/10, under Public Bldgs.

▲ † **N. Y., Sampson**—AIR FIELD FACILITIES—B.A. 12/20—U. S. Eng., 80 Lafayette St., New York, Zone 13, airfield facilities at Sampson Air Force Base. $1,000,000-$1,500,000. Plans deposit $10. CD 10/15.

BIDS ASKED—BUILDINGS

▲ **N. J., Passaic**—HOUSING—B.A. 12/19—Housing Authority of City of Passaic, City Hall, Aspen Place low rent housing, 384 families on 8 acre tract, $5,000,000. Kelly & Gruzen, 80 Fifth Ave., New York, 111. N. Y., archts. CD 9/2/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Lane Constr. Corp. 37 Colony St., Meriden, Conn., LB, $880,937, reconstruct 5.01 mi. Rte. 223, Chemung and Tioga Counties.

Mt. Vernon Contg. Corp., 439 N. Terrace Ave., Mt. Vernon, N. Y., LB $409,529, reconstruct 1.84 mi. Route 120 west of Westchester County Airport, Westchester Co.;

Talarico Contg. Corp., 105 5th Ave., Herkimer, LB $209,503, bit. macad. 3.59 mi. County Road 10 between Fosterville and Throopsville, Cayuga Co. Bids Nov. 14. CD 10/26.

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office Bldg., Trenton,

George M. Brewster & Son, 275 W. Ft. Lee Rd., Bogota, N. J., LB, $1,372,933, grading, paving 1.96 mi. Route 26 Extension (Trenton Freeway) from Perry to Strawberry Sts., Fed. Aid Proj. UI-190 (8), Mercer Co. Bids Nov. 15. CD 10/29.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

The Baldwin Bros. Paving Co., 1690 Union Commerce Bldg., Cleveland 14, O., CA $645,884, c. conc. 4.09 mi., 22 ft. wide, one rein.-con. bridge over branch of Walnut Creek and an I-beam bridge over Elk Creek from Middleburg Boro, north, T. R. 99, in McKean, Summit and Mill Creek Twps. Erie Co. Bids Nov. 2. Awarded Nov. 16. CD 11/7, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

H. T. Osburn & Co. Inc., 631 12th St., Franklin, Pa., CA $824,999, construct 29,324 ft. rein.-con. roadway and 3 bridges T. R. 19; 6, Erie Co. Bids Nov. 2, awarded Nov. 14. CD 11/7, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Rubin Constr. Co., 11 W. 42 St., New York 18, N. Y. LB $713,700, construct SCHOOL, P. S. 35, Serpentine Rd. and Clove Rd., Richmond Boro, NEW YORK. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 9. CD 10/17.

Gotham Constr. Corp., 501 Fifth Ave., New York 17, N. Y. LB $909,500, SCHOOL, P. S. 139 addn., Rugby Rd., north of Cortelyou Rd. BROOKLYN, N. Y. Ed. Educ., 49 Flatbush Ave. exten., BROOKLYN 1, N. Y. Bids Oct. 16. CD 10/24, under LB.

Maran Constr. Co., Inc., 1910 Arthur Ave., New York 57, N. Y. LB $998,000 SCHOOL, P. S. 152 addn. Glenwood Rd. and E. 23 St., BROOKLYN, N. Y.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 13. CD 10/23.

▲ **Harry Mereski, Inc.**, 420 Lexington Ave., New York 17, N. Y. LB $1,045,900, SCHOOL, P. S. 27 addn. Nelson and Hicks Sts., BROOKLYN, N. Y. Supt. School Bldgs. Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 14. CD 10/23.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. CA $1,193,000. SCHOOL, P. S. 260, Stanley and Williams Aves., Spec. Nos 67-68-69-70, BROOKLYN, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush ave. exten. Brooklyn 1, N. Y. Bids Oct. 23. CD 10/4.

C. W. C. Constr. Corp., 105 Court St., Brooklyn 2, N. Y. LB $421,500. Newton HIGH SCHOOL Agricultural Annex, Main St. and Gravett Rd., Queens Boro, FLUSHING, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 16. CD 10/29.

▲ **George F. Driscoll Co. & Moccia Constr. Co.**, 41 E. 42 St., New York 17, N. Y. CA. $1,217,700. SCHOOL, P. S. 200, 164 St. between 71 and Jewell Aves., FOREST HILLS, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Oct. 19. CD 10/24, under LB.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. LB $1,843,000 Junior HIGH SCHOOL 145, North side 34 Ave. to Northern Blvd. between 79 and 80 Sts. JACKSON HEIGHTS, N. Y. Bd. Educ., 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 9. CD 11/1.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. LB $1,320,000 SCHOOL, P. S. 112, 229 St. and Schieffelin Ave., Bronx Boro, NEW YORK, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 7. CD 10/17.

▲ **John J. Brady & Co.**, 606 W. 47 St., New York 19, N. Y. LB $1,486,000. SCHOOL, P. S. 122, Kingsbridge Rd. between Heath and Bailey Aves., Bronx Boro, NEW YORK, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 5. CD 10/17.

▲ **Gardella & Gray, Inc.**, 1775 Broadway, New York 19, N. Y. LB $1,228,900, SCHOOL, P. S. 127, Purdy and Sq. Raymond Aves., NEW YORK, N. Y. Bd. Educ., 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 8. CD 10/18.

John Rosenblum, Inc., 1860 Broadway, New York 23, N. Y. LB $859,600. SCHOOL, P. S. 114 addn., Beach 135 St. and Cranston Ave., Queens Boro, ROCKAWAY, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 8. CD 10/17.

▲ **Laurence J. Rice**, 30 Deepdene Rd., Forest Hills, N. Y. CA. $1,183,600. SCHOOL, P. S. 193, 152 St. between 11 and 12 Aves., Spec. Nos. 58-59-60-61, WHITESTONE, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Oct. 3. CD 10/10, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

La., Opelousas—B.A. 12/4—St. Landry Parish Police Jury, Opelousas, bridges over Bayou Bourbeau in Wards 1 and 2, M. J. Godeau, 170 W. Bellevue St., Opelousas, engr.

La., Lake Charles—B.A. 12/5—City, City Hall, 19,230 sq. yd. concrete street paving, 38,600 sq. ft. sidewalks.

Mississippi—B.A. 12/5—Adams Co., Natchez, and Wilkinson Co., Woodville, concrete, steel bridge over Homochitto River on old Natchez-Woodville Rd. $178,000. Plans deposit $5. Cavallo Wier, Barnett-Madden Bldg., Jackson, engrs.

Miss., Natchez—B.A. 12/5—Adams Co., Court House, 2 bridges on Emerald Mound and Tate Rds. Plans deposit $5.

North Carolina—RURAL DISTRIBUTION LINES—B.A. 12/6—At office B. O. Vannort Engineers, Inc., engr., 700 S. College St., Charlotte, 70 mi. rural distr. lines, Rowan, Iredell, Catawba, Lincoln, Gaston, Mecklenburg and Cabarrus Counties, N. C. 48, for Cornelius Electric Membership Corp., Cornelius, N. C. Plans deposit $10. CD 5/20/49.

† **Louisiana**—B.A. 12/7—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, 166,600 cu. yd. earthwork on East Atchafalaya Basin Protection Levees, St. Mary Parish, Inv. 52-92. CD 6/26/4c.

N. C., Madison—B.A. 12/7—Town C. G. Moore, mayor, Madison, water imprvs. Wm. F. Freeman Engrs., Inc., High Point, engr. CD 11/5.

La., New Orleans—B.A. 12/10—Orleans Parish School Bd., 703 Carondelet St., grading, paving sidewalks at Gentilly Terrace School.

La., Shreveport—B.A. 12/11—City, City Hall, 21,215 lin. ft. 8- to 12-in. sanitary sewers, for Lonoke and Parkhurst Subdivisions. CD 10/10.

(Continued on page 70)

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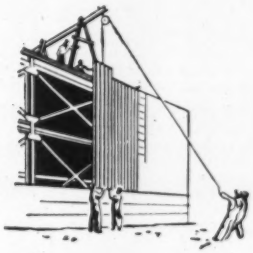

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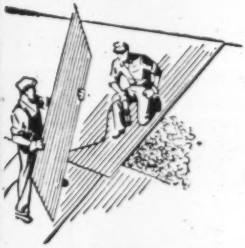

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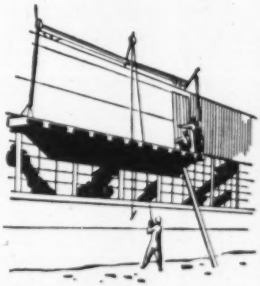

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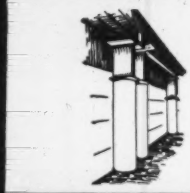

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(Continued from page 68)

† Fla., Orlando — HEADQUARTERS, etc. — B.A. About 12/28—U. S. Eng., P. O. Box 4970, Jacksonville, maintenance and supply group headquarters, academic bldg., AIO administration bldg., paint and dope storage and physiological trainer buildings, Pinecastle Air Force Base, Serial No. Eng 1-08-123-52-79. CD 1/31.

BIDS ASKED—BUILDINGS

Ala., Opelika—HOUSING—B.A. 12/4—Opelika Housing Auth., Opelika, 76 housing units, $600,000. Plans deposit $25. Stevens & Wilkinson, 157 Luckie St., Atlanta, Ga., archts. CD 7/27/50.

Fla., Tampa—SCHOOL—B.A. 12/4—Hillsborough Co. Bd. P. Instruction, Box 2250, Pinecrest Elementary School addn. Plans deposit $25. A. M. Watson, 1529 Grand Central Ave., archt. CD 3/18/48.

Ky., Jamestown—SCHOOL—B.A. 12/11—Russell Co., Bd. Educ., Jamestown, East Side High School. Plans deposit $25. Meriwether, Marye & Assoc., 236 E. Short St., Lexington, archts.

▲ Tenn., Knoxville — SUPREME COURT — B.A. About 12/15—State, State Capitol, Nashville, supreme court bldg. $1,500,000. Bauman & Bauman, 813½ Market St., archts. CD 5/24.

Fla., Pensacola — HOUSING — B.A. 12/18 — Pensacola Housing Auth., Aragon Court, Pensacola, 120 housing units. Proj. FLA-6-5, $950,000. Plans deposit $15.

S. C., Clearwater—HIGH SCHOOL—B.A. 12/19—Aiken County School Dist. 4, Aiken, high school. $600,000. Wm. G. Lyles, Bissett, Carlisle & Wolff, 1321 Bull St., Columbia, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Atkinson Dredging Co., Great Bridge, Va., LB $57,354, dredging in Cape Fear River channel, WILMINGTON, N. C. North Carolina State Ports Auth., 225 Princess St., Wilmington, N. C.

Arthur Pew Constr. Co., Buckhead Theater Bldg., Atlanta, Ga., LB $838,890, Div. 1, treatment plant.

E. W. Bacharach, Rialto Bldg., Kansas City, Mo., LB, $386,000, Div. 2, supply lines.

L. F. Wilder, 2301 N. 24 St., Birmingham, Ala., LB $272,832, Div. 3, pipe work, MARIETTA, GA. Cob County-Marietta Water Auth., Marietta, Ga. Bids Nov. 12. CD 10/18.

FLORIDA—State Rd. Dpt., Bradenton Memorial Pier Bldg., Bradenton.

H. E. Wolfe Constr. Co., St. Augustine, Fla., CA $840,660, stabilizing, paving, drainage structures State Rd. 25 between State Rd. 630 and State Rd. 60, Job 1617-203, Polk Co. Bids June 26, awarded Nov. 8. CD 7/3, under LB.

J. B. Owens Constr. Co., 3800 16 St. N., St. Petersburg, Fla., CA, $139,848, addnl. sanitary sewer improvs. in Areas 1 and 7, Grand Central Avenue Rehabilitation, TAMPA, FLA. City, City Hall, Tampa, Fla. Bids Oct. 12.

Roland Constr. Co., P. O. Box 850, Alexandria, La. LB $747,092. Sanitary sewer lines, pumping stations, etc., RUSTON, LA. City, Ruston, La. Bids Nov. 13. CD 10/17.

J. H. Jenkins, Inc., 5163 Choctaw Dr., Baton Rouge, La. LB $588,981. Street paving and drainage, VILLE PLATTE, LA. Road Dist. 6 of Evangeline Parish and Town of Ville Platte, Ville Platte, La. Bids Nov. 12. CD 10/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Wise Constr. Co., 8 and Grace Sts., Richmond, Va., LB $2,202,200, 3 WAREHOUSES, Richmond Quartermaster Depot ENG 44-110-52-8, RICHMOND, VA. U. S. Eng., Box 119, Norfolk 1, Va. Bids Nov. 14. CD 10/22.

Cassell Bros., Kingsport, Tenn., LB $693,000. Pound HIGH SCHOOL, WISE, VA. Wise Co., Wise, Va.

Van Winkle & Co., Whitehead Bldg., Atlanta, Ga., CA, $85,000, WAREHOUSE addns., alterations, ATLANTA, GA. Harris Automotive Service, 404 W. Peachtree St. N. W., Atlanta, Ga.

S. L. Holcombe, 437 Avery St., Decatur, Ga., Owner Builds, $350,000, RESIDENTIAL DEVELOPMENT, Greencove Lane Section, ATLANTA, GA.

▲ Jordan Contg. Co., Andrews Rd., Columbia, Ga., CA, $1,620,000, 200 HOUSING units, COLUMBUS, GA. Benning Housing Corp., c/o contractor.

▲ Distr. P. Wks. Office, Box 465, Naval Base, S. C., contract withdrawn, 392 unit Magnolia Springs Housing, GREEN COVE SPRINGS, FLA. Bids June 21. CD 7/19, under CA.

Shelby Constr. Co., 4220 Paris Ave., New Orelans, La. CA $929,680 construct, manage and finance 120 HOUSING units at Redstone Arsenal, HUNTSVILLE, ALA. U. S. Eng., Post Office Bldg., Atlanta, Ga. CD 10/15, under LB.

Shelby Constr. Co., 1106 Canal St., New Orleans, La. CA $498,153 76 HOUSING units, Proj. LA 28-1 and LA 28-2, RAYNE, LA. Rayne Housing Auth., Rayne, La. Bids Nov. 13. CD 10/19.

L. Leroy Highbaugh Jr., 509 W. Market St., Louisville, Ky. Owner Builds. $350,000. 57 HOMES, Craig and Powell Sts., LOUISVILLE, KY.

Builders & Developers, Inc., Dixie Hy., Louisville, Ky. Owner Builds. $850,000. 81 HOMES, Kellberry Acres Subdivision, LOUISVILLE, KY.

Martin Constr. Co., P. O. Box 129, Madison, Tenn., Owner Builds. Approx. $500,000. 68 RESIDENCES, MADISON, TENN.

Fred Wright Constr. Co., Nashville Trust Bldg., Nashville, Tenn., CA. Approx. $400,000. CLASSROOM-OFFICE Bldg., NASHVILLE, TENN. George Peabody College for Teachers, 21st Ave. S., Nashville, Tenn.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ind., Hobart—SCHOOL—B.A. 12/5—Hobart Twp. Trustees, Hobart, Henry S. Evans School, $300,000. Joe. H. Wildermuth, 527 Broadway, Gary, archt. CD 10/3.

▲ Wis., Milwaukee—SHOP, etc.—B.A. 12/19—Bd. Vocational & Adult Educ., 1015 N. 6 St., 3 story, bsmnt. shop and technical bldg., $1,000,000. Plans deposit $50. Grassold & Johnson, 734 N. Jefferson St., Zone 2, archts. CD 7/17.

Ind., Goshen — HOSPITAL — B.A. 1/16 — Bd. Hospital Trustees, Goshen, 3 story hospital, $875,000. Paul F. Jernegan, 23 Lincolnway, East Mishawaka, Ind., archt. No bids received 10/25. CD 9/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Square Constr. Co., 238 N. Park St., Cleveland, O., and Marra Constr. Co., 2063 E. 4 St., Cleveland, O., CA, $1,387,779, est. $1,407,507, main sewer 34 St. Sewer from 38 St. to Temple Ave., INDIANAPOLIS, IND. Bd. P. Wks., City Hall, Indianapolis, 4, Ind. Bids Nov. 15. CD 10/23.

ILLINOIS—State Div. Hys., Springfield,

Eric Bolander Constr. Co., Libertyville, Ill., LB $73,302, 3 bridges on Ill. 324, Iroquois Co., CD 10/29;

C. J. Moritz, Inc., Register Bldg., Effingham, Ill., LB $495,210, imprv. 9 bridges, Ill. 37, Jefferson Co., CD 11/8. Bids Nov. 14.

▲ ILLINOIS—State Div. Hys., Springfield,

R. A. Cullinan & Son, Inc., Tremont, Ill., LB $64,534, bit. 2.45 mi. on Ill. 566, Loan Co.; LB $74,525, grav. or crushed stone surf. course 4.16 mi. on Ill. 364, Woodford Co.;

Edwardsville Constr. Co., 309 Bank of Edwardsville Bldg., Edwardsville, Ill., LB, $127,455, c. conc. base course wid'n. 8.97 mi. Ill. 3, Madison and Jersey Counties; LB $90,703, c. conc. base course wid'n. 5.81 mi. Ill. 38, Jersey Co.;

Triangle Constr. Co., 480 N. Evergreen Ave., Kankakee, Ill., LB, $260,481, c. conc. base course wid'n. 17 mi. Ill. 13, Jackson and Perry Counties; LB $351,541, c. conc. paving and constr. 2 bridges 1.52 mi. on Ill. 2, Jackson Co.;

Moore Bros., Inc., 2000 St. Clair Ave. East St. Louis, Ill., LB, $161,933, c. conc. base course wid'n. 8.93 mi. Ill. 15, St. Clair, Clinton and Washington Counties;

Powers-Thompson Constr. Co., 27 S. Chicago St., Joliet, Ill., LB, $124,643, c. conc. 0.91 mi. Ill. 23, Will Co.;

Sangamo Constr. Co., 700 N. MacArthur Blvd., Springfield, Ill., LB, $294,974, c. conc. base course, structure for r.r. subway, 0.57 mi, Sangamon Co.;

Bituminous Fuel & Oil Co., 509 First National Bldg. East St. Louis, Ill., LB, $287,890, bit. 4.96 mi. Ill. 937, Massac Co.;

M. Hoeffken Co. and Hoeffken Bros. Inc., 22 W. "B" St., Belleville, Ill., LB, $233,374, c. conc. base course and 10.28 mi. Ill. 12, St. Clair Co.;

J. C. O'Connor & Sons, Inc., 2104 Miner St., Fort Wayne 6, Ind., LB, $1,493,705, c. conc. 8-18 mi. Ill. 13 Clay and Richland Counties;

Chatham Paving Co., 8452 S. State St., Chicago, 19, Ill. LB $115,609, c. conc. wid'n. 8.36 mi. Ill. 55 and 66 Cook and Du Page Counties;

Scheflow & Monahan, 466 Main St., Glen Ellyn, Ill., LB $537,922, c. conc. 2.56 mi. Ill. 131 Du Page Co.;

Standard Paving Co., 30 N. La Salle St., Chicago, 2, Ill., LB, $192,319, grav. or crushed stone surf. course 7.34 mi. on Ill. 94, De Kalb Co.;

Mason and Meents Constr. Co., P.O. Box 202, Watseka, Ill., LB, $249,906, bit. on grav. or crushed stone paving, 7.43 mi. Iroquois Co. Bids Nov. 14. CD 10/29 and 11/8.

Clinton Hursey Constr. Co., 1235 Missouri Ave., East St. Louis, Ill., CA, $89,712, est. $80,000 water supply main extension and appurtenances, incl. laying 29,200 lin. ft. 12 in. water main, one levee and canal crossing, 2 railroad crossings, COLUMBIA, ILL. City, Albert C. Matter, mayor, Columbia, Ill. Bids Nov. "12. CD 10/30.

E. A. Bock Constr. Co., 310 East Fleming Ave., Fort Wayne, Ind., CA, $169,725, WW sys., incl. water supply, steel standpipe, distr. sys. and treatment plant, PATOKA, ILL. Village Village Hall, Patoka, Ill. Caldwell-Rhoads Co., West College at Diamond Sts., Jacksonville, Ill., engr. Bids Nov. 5.

Lueck Constr. Co., 3510 W. Kiehman Ave., Milwaukee, 9 Wis., CA, $690,300, water filtration plant, CUDAHY, WIS. City, Cudahy, Wis. Bids Nov. 9.

BUILDINGS

LOW BIDS AND CONTRACTS

Guide Lamp Div., General Motors Corp., 2701 Pendleton Ave., Anderson, Ind., Separate Contracts, $500,000. 100x500 ft., brick, steel INDUSTRIAL BLDG., ANDERSON, IND.

Enright Brothers Constr. Co., 3202 W. 57 St., Indianapolis, Ind., Owner Builds, $500,000 20 HOMES, INDIANAPOLIS, IND.

Power Constr. Co., 212 S. Marion St., Oak Park, Ill., CA, $125,000, FACTORY addn., CHICAGO, ILL. United Felt Co., 3729 S. St. Louis, St., Chicago Ill. CD 10/17.

▲ Campbell Constr. Co., 9301 Michigan Ave., Detroit, Mich. CA $1,855,000. 1 story, 410x965 ft., brick, steel WAREHOUSE, incl. OFFICES, Joy Rd., DETROIT, MICH. Food Warehouses, Inc., 13901 Joy Rd., Detroit, Mich. Louis G. Redstone, 3510 Woodward St., Detroit, Mich., archt.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Wyoming—STRUCTURAL STEEL—B.A. 12/4—Bureau Reclamation, Dpt. Interior, Casper, structural steel for Ogallala sub-station, Missouri River Basin Proj., Transmission Division. Spec. 703C-218. L. N. McClellan, Bldg. 1 A, Denver Federal Center, Denver, Colo., ch. engr.

Tex., Fort Worth—B.A. 12/6—City, c/o W. O. Jones, mgr., City Hall, sanitary sewer mains and laterals in White Settlement and Brookside Acres Addn. $275,000. Plans deposit $15. Joe J. Rady, 811 Insurance Bldg., engr. CD 11/14.

† Wyoming—TRANSMISSION LINE—B.A. 12/6—Bureau Reclamation, Dpt. Interior, Casper, Wyo., repairing overhead ground wires on existing Seminoe-Casper 115 kv transmission lines, Kendrick Proj., Spec. 3703-C-225. L. N. McClellan, Bldg. 1 A, Denver Federal Center, Denver, Colo., ch. engr. CD 9/12/44.

† Arkansas—B.A. 12/11—U. S. Eng., P.O. Box 60, Vicksburg, Miss., restoration approx. 385 stations of levee and dikes, placing approx. 95,000 cu. yd. erosion fill and approx. 235 acres fertilizing of west bank Mississippi River Levees in Desha Co., CIVENG 22-052-52-71. CD 12/24/43.

Tex., Big Spring—B.A. 12/11—City, c/o H. W. Whitney, mgr., water distr. mains, appurtenances. $200,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. CD 7/5.

† Wyo., Cheyenne—WAREHOUSE—B.A. 12/13—U. S. Eng., 1709 Jackson St., Omaha, Neb., base supply warehouse, at Francis E. Warren Air Force Base, Inv. 52-10. Extended date. CD 11/13.

▲† Tex., Lackland Air Base (Br. San Antonio)—RECORDS and PROCESSING BLDG.—B.A. 12/21—U. S. Eng., 606 Santa Fe Bldg., Galveston, 78,000 sq. ft. records and processing bldg., Inv. No. Eng. 41-243-52-19, $2,000,000. CD 9/12, under LB.

BIDS ASKED—BUILDINGS

▲† Colo., Boulder—BUILDINGS—B.A. 1/11—Atomic Energy Comm., P. O. Box 5400, Albuquerque, N. M., 2 story 20,000 sq. ft., rein.-con. administration bldg., 1 single-story wing, two 11,000 sq. ft. plant protection and medical bldgs. at Rocky Flats Plant, $1,000,000 to $1,300,000. The Austin Co., 1300 Glenarm Pl., Denver, archt. and engr.

SOON LETS CONTRACT—BUILDINGS

Tex., Houston — ROUNDHOUSE, etc. — Ethyl Corp., National Standard Bldg., soon lets general contract and mechanical work for roundhouse and garage, $90,000. Golemon & Rolfe, 915 Woodrow St., archts. CD 10/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Carrothers Constr. Co., Paola, Kan. CA $125,000. relocation sewage disposal plant, addn., piping, etc., FULTON, MO., City, Jack Garrett, mayor, Fulton, Mo. Bids Sept. 17.

Koenig Bros., Webster, S. D., CA. $119,719, sewers and sewage plant, OLGA, S. D. City, Volga, S. D., Bids Oct. 30. CD 10/17.

▲ TEXAS—State Hy. Comm., Austin,

Uvalde Constr. Co., P. O. Box 2027, Dallas, Tex., LB $6,0,136, grading, wid'n bridges, fdn. crs., wid'n pavement, hot mix b. conc. pavement and flexible base 13.999 mi. Hy. U. S. 75, Proj. C 47-4 and 5-9 and 15, Collin Co.; LB $182,136, hot mix b. conc. pavement Hy. SH 183 and Loo 12, 16.406 mi. Proj. C 94-3-14, etc. Dallas Co.;

Brown & Root, Inc., P. O. Box 3, Houston, Tex., LB $89,775, est. $75,000, grading, base and surf. 6.233 mi. FM 362, Proj. S 1088 (3), Waller Co.;

Thomas & Ratliff, Rogers, Tex., LB $126,346, est. $100,000, grading, structures 4.988 mi. SH 156, Proj. F 646 (7), Smith Co.;

Pioneer Trucking & Constr. Co., Grapeland, Tex., LB $1/2,,01, est. $175,000, flexible base, two course surf. tr. 10.855 mi. Hy. U. S. 96, Proj. F 159 (6), Shelby Co.;

H. B. Zachary Co., P. O. Box 2570, San Antonio, Tex., LB $731,318, est. $180,000, flexible base, c. conc. pavement widening and hot mix b. conc. 13.954 mi. Hy. U. S. 75, Proj. C 47-2 and 3.25 and 17, Grayson Co.;

Gulf Bitulithic Co., P. O. Box 2096, Tex., LB $212,469, est. $175,000, flexible base, hot mix b. conc. pavement Hy. U. S. 59, 6.678 mi. Proj. C 27-8 and 9 34 and 10, Fort Bend and Harris Counties;

R. W. McKinney, Nacogdoches, Tex., LB $66,811, est. $65,000, grading, base and surf. 3.834 mi. Hy. FM 287, Proj. S 1825 (1), Trinity Co.;

Adams Bros., Kaufman, Tex., LB $70,000, est. $65,000, grading, structures, base, surf. 6.017 mi. Hy. FM 879, Proj. V 1159-2-1, Ellis Co.;

R. N. Adams, P. O. Box 376, Kaufman, Tex., LB $177,732, est. $180,000, grading, fdn. course and one course surf. tr. 3.67 mi. Hy. FM 51, Proj. C 312-2-1, Denton Co.;

Public Constr. Co. & W. M. Jagoe Co., Inc., P. O. Box 380, Denton, Tex., LB $137,843, hot mix b. conc. pavement Hy. SH 31, C 163-1-12, Navarro Co.;

Cooper & Woodruff, Amarillo, Tex., LB $142,140, flexible base and 2 course surf. tr. 12 mi. Hy. SH 70, Proj. S 1212 (5), Roberts Co.;

Killian-Keller Co., P. O. Box 1981 San Antonio, Tex., LB $94,788, grading, select material and fdn. course 3.577 mi. Hy. RM 93, Proj. S 1691 (1), Llano Co.;

E. B. Darby & Co., Pharr, Tex., LB $89,672, grading, structures, base and surf., 10.807 mi. Hy. FM 1428 and 1426, R 861-5-1, Hidalgo Co. Bids Nov. 14. CD 10/26, 10/22 and 10/31.

† West Texas Builders, Lubbock, Tex., LB $87,969, three hangars addn. at Reese Air Fore Base, LUBBOCK, TEX. U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, Tex., Atcheson, Atkinson, Cooper & Assoc., Lubbock, Tex., engrs. archts. Bids Nov. 13. CD 10/17.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,

C. L. Hubner Co., 4200 E. Jewell St., Denver, Colo., LB, $204,799, est. $169,142, grading, structures, road mix oil processing 4.109 mi. State Hy. 69 from Hillside Southerly to point 7 mi. north of Westcliffe, S-0038 (6), Custer Co.;

Northwestern Eng. Co., 6000 Colorado Blvd., Denver, Colo., LB, $129,675, est. $138,944, structures, stabilization oil processing 6.168 mi. Proj. S-001-(10) Bristol and Cheyenne Wells, Proj. S 0003 (3) south of Holly, S 0175 between Karman and May Valley, Prowers Co. Bids Nov. 6. CD 11/1.

† Kirkhof Electric Co., 101 Sheldon St., S.E., Grand Rapids, Mich., LB, $87,210, control board and recording board for Flatiron Power and Pumping Plant, Colorado-Big Thompson Proj., Spec. DS 3549, COLORADO, Bureau Reclamation, Dept. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids Nov. 6. CD 10/30.

Western Constr. Co., 2500 S. 8 Ave., Greeley, Colo., LB, $110,460, constr. house, misc. fish hatchery bldgs., piping dams and ponds, etc. at State Hatchery, 7 mi. northwest of here, LAS ANIMAS, COLO. State Game & Fish Dpt., State Capitol Bldg., Denver, Colo. Bids Nov. 8. Damon Runwin, 8592 W. Colfax St., Lakewood, Colo., engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Hansford Building Co., 237 Roosevelt Bldg., 4903 Delmar Blvd., St. Louis 8, Mo. CA concrete, steel INDUSTRIAL BLDG. and OFFICE, concrete fdn. Gay Ave. about 1,000 ft. south of Ladue Rd., LADUE (ST. LOUIS 25, P.O.), MO. Midwest Alloys, Inc., 1200 N. Rock Hill Rd., St. Louis 17, Mr. Luria Engineering Co., 500 Fifth Ave., New York, N. Y., archt.

H. Kissels Sons, 2140 E. College Ave., St. Louis 7, Mo. CA 1 story, 49x130 ft., brick, concrete block PLATING PLANT addns., ST. LOUIS, MO. Homer A. Doerr, 2729 St. Louis Ave., St. Louis 6, Mo. Homer A. Doerr & Sons Plating Co., lessee, Julius E. Tarling, 2807 N. Grand Blvd., St. Louis 7, Mo., archt.

Joseph H. Newton, 703 S. Glenston St., Springfield, Mo. CA 1 story, 68x160 ft., brick, rein.-con., stone Automobile SERVICE and SALES BUILDING, 637 College Ave., SPRINGFIELD, MO. Herrick Motor Co., Inc., 427 College Ave., Springfield, Mo.

▲† Farnsworth & Chambers, Inc., Box 74, Houston, Tex., LB $2,839,231. Technical SHOP, Inv. No. 291-52-3, LOS ALAMOS, N. M. U. S. Atomic Energy Comm., Los Alamos, N. M. Bids Nov. 9. CD 10/24.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Calif., Mount Hamilton—TELESCOPE—B.A. 1/8—University of California, Administration Bldg., Berkeley, 120 in. telescope at Lick Observatory, near San Jose, Plans deposit $50. CD 8/24/44.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Woodward Governor Co., 5001 N. 2 St., Rockford, Ill., LB, $97,080, governors with pumping equipment for Folsom Power Plant, Central Valley Proj., Spec. DS 3568, CALIFORNIA, Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids Nov. 6. CD 10/8.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† Alaska—B.A. 12/18—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Palmer, one 7.08-ftx9-ft. bulkhead gate leaf, one hoist for 7.08ftx9-ft bulkhead gate, one frame and one frame anchorage for 7.08-ftx9-ft bulkhead gate, for gate shaft of pressure tunnel, Eklutna Proj. Inv. No. DS-3596.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Peter Kiewit Sons' Co., Longview, Wash., LB $718,913, remove receiver facility, 595-507-52-7, Ladd Air Force Base, ALASKA. U. S. Eng. (APO 942 c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Nov. 14. CD 11/7.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Bureau Indian Affairs, Dpt. Interior, Alaska Native Service, Interior Bldg., 19 and C Sts., Wash. 25, D. C. rejected bids Oct. 23. HOSPITAL, BETHEL, ALASKA. LB $3,932,254. CD 10/24, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Newfoundland, St. John's—WHARF—B.A. 12/4—P. J. Mangan, engr., Defence Constr. Ltd., 1032 Gottingen St., Halifax, N. S., deepwater wharf, landyard deck and storage area at Seward Defence Site, $250,000. Plans deposit $50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Canadian Dredge & Dock Co. Ltd., Harbor Commission Bldg., Toronto, Ont., CA, $833,750, dredging in harbour, PORT ARTHUR, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Sept. 12. CD 9/21, under LB.

St. Lawrence Contg. Co. Ltd., 21 Wallbridge Rd., Belleville, Ont., CA, Approx. $300,000, officers' quarters and gun stop butt at R.C.A.F. Station, TRENTON, ONT. Defence Constr. Ltd., 441 Queens' Quay W., Toronto, 2b, Ont. Bids Oct. 16. CD 10/3.

BUILDINGS

LOW BIDS AND CONTRACTS

Wiebe Constr. Co., Ltd. 1400 Wall St., Winnipeg, Man., LB., Approx. $350,000, 30-bed HOSPITAL UNIT, SOURIS, MAN. Souris Hospital Dist. Zone, Souris, Man. CD 8/20.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Concord—Gregory Gardens Water Dist., Concord, voted $800,000 bonds, water distr. sys. in district incl. pumping plant, etc. Roy E. Ramseier, 2813 Parker St., Berkeley, consult. engr. CD 9/19.

La., Sulphur—Town, $850,000 bond election Dec. 4, WW imprvs. and sanitary sewers. CD 12/23/49.

▲ **Mich., Detroit**—Wayne Co., County Rd. Comn., 10 m.g. reservoir, Electric Ave., Lincoln Park; 36 in. water supply main, Detroit to Plymouth; 36 in. water supply line Riverview to Trenton; 1 m.g. elevated steel tank, Trenton, $2,000,000. Albert E. Kunze, Detroit Co. water supply, engr. CD 9/7/44.

O., Lorain—City, City Hall, voted $400,000 bonds, WW imprvs. CD 12/9/49.

▲ **B. C., Vancouver**—City, City Hall, exten. WW sys. incl. new 42 in. main to service industrial area along Fraser River east from Marpole. $1,000,000. J. C. Oliver, City Hall, city engr. CD 9/28/43.

SEWERS, WASTE DISPOSAL

Kan., Chanute—City, sewage plant, $445,000, Reeves & Schlup, 1401 Fairfax Trafficway, Kansas City, Kan., consult. engrs. CD 11/7.

▲ **N. Y., Lackawanna**—City, sewage treatment plant, trunk sewers and pumping stations. $1,500,000.

▲ **O., Findlay**—City, City Hall, voted bonds Nov. 6, sewage imprvs. $1,200,000. CD 9/6.

▲ **O., Lorain**—City, voted $2,100,000 bonds, sewage disposal plant. CD 8/6.

▲ **O., Springfield**—City, City Hall, voted bonds Nov. 6, sewer imprvs. $3,350,000. CD 5/2/46.

▲ **Va., Arlington**—Arlington Co. County Court House, voted bonds, storm drain sewers. $1,392,000. CD 9/28.

▲ **Va., Charlotteville**—City, City Hall, sewage treatment sys. $1,000,000. Polglaze & Basenberg, Empire Bldg., Birmingham, Ala., consult. engrs. CD 7/20/45.

Wis., South Milwaukee—City defeated bonds, sewerage system, $500,000. Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, Ill., engrs. CD 4/12.

▲ **B. C., Vancouver**—City, City Hall, sewerage sys. extens. $1,000,000. J. C. Oliver, City Hall, city engr. CD 9/28/43.

BRIDGES

Neb., Hebron-Thayer Co., $500,000 bond election Dec. 11, bridges lost in recent floods. R. D. Menke, co. engr.

O., Middletown—City, City Hall, voted bonds, Nelbar Interpark, $500,000. CD 11/23/45.

▲ **Nova Scotia**—Halifax-Dartmouth Bridge Comn., Halifax completing plans suspension type bridge across Halifax Harbour, between Halifax and Dartmouth, $7,000,000. P. L. Prattey, 909 Drummond Bldg., Montreal, Que., engr. CD 10/15/43.

STREETS AND ROADS

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., Hall of Records, impry. Florence Ave., Eastern to Emil Aves., Bell Gardens, $180,000; impry. Alameda St. Dominguez St. to Santa Fe Ave., Compton, $275,000; impry. Rosecrans Ave., Garfield Ave. to Lakewood Blvd., Compton, $180,000; impry. La Cienega Blvd., Stocker Rd. to Rodeo Rd., Culver City, $400,000; impry. Redonda Ave., Pacific Coast Hy. to Spring St., Long Beach, $130,000; impry. Del Amo Blvd., Lakewood Blvd. to Cherry Ave., $90,000; impry. Valley Blvd., 3 Ave. to Hacienda St., Puente, $150,000; impry. Crenshaw Blvd., Pacific Coast Hy. to Lomita Blvd., Torrance, $85,000. S. R. Kerndy, road comr. CD 9/19/45.

▲ **Mich., Flint**—Bd. Supervs. Genesee Co., Flint, paving and repairing co. roads, $2,342,000.

Mich., Pontiac—Oakland Co. Road Comrs., Court House, road repairs and rebuilding roads, $800,000.

▲ **O., Cleveland**—Comrs. Cuyahoga Co. voted bonds Nov. 6, road construction program, $10,000,000.

▲ **Tex., Brownville**—Cameron Co., Court House, bond election Dec. 8, road constr., imprvs., rehabilitation and surf., Precincts 1, 2, 3 and 4, $750,000 each. James C. Harris, c/o owner, engr.

▲ **Va., Arlington**—Arlington Co., County Court House, voted bonds, highways and sidewalks, $1,318,000. CD 9/28.

Ont., Toronto—City, City Hall, wid'n. Jones Ave. from Queen St. E., to Danforth Ave. $610,966. L. B. Allan, City Hall, comr. Works. CD 2/19.

EARTHWORK, WATERWAYS

▲† **Arkansas**—U. S. Eng., 300 Broadway, Little Rock, addnl. work on Blakeley Mountain Reservoir, Ouachita River, Hot Springs, Garland Co., $5,700,000.

▲† **Arkansas**—U. S. Eng., 300 Broadway, Little Rock, addnl. work at Bull Shoals Dam, White River, Cotter, $14,960,000.

▲† **Kansas**—Bureau of Reclamation, Dpt. Interior, 19 and C Sts., Wash. 25, D. C., earth-fill Kirwin Dam on north Fork of Solomon River, near Kirwin. Bids in Spring. Total est. $18,187,000, ($2,500,000 appropriated). CD 7/30/45.

▲† **New Mexico**—Bureau Recaimation, Dpt. Interior, Denver Federal Center, Denver, Colo., rehabilitation irrigation facilities for 7,200 acres near Maxwell, for Vermejo Proj. $2,664,000. ($285,000 appropriated). CD 9/7/44.

▲† **North Dakota**—Bureau Reclamation, Dpt. Interior, Interior Bldg., 19 and C St. N. W., Wash. 25, D. C., Jamestown Dam on James River with reservoir extending 40 mi. up river from Jamestown, to store 540,000 acre-ft. for flood control and water supply. $10,628,000. ($500,000 appropriated). CD 5/25/44.

AIRPORTS

▲† **Calif., San Bernardino**—GROUND FACILITIES, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, radio-air-ground facilities, supporting utilities, warehouse, AM barracks (permanent) and AM barracks (temporary), Norton Air Force Base, $6,575,000. CD 4/5.

Fla., Miami—LIGHTS—Dade Co., Court House, high intensity lights on instrument runway, enlarge terminal and clearing obstructions at International Airport, $907,928. CD 7/12/49.

Mich., Grand Rapids—AIRPORT—Kent Co., Grand Rapids, 6,000 ft. runway and lighting at Kent County Airport, $480,000.

▲† **Minn., Duluth**—AIRPORT IMPRVS.—U. S. Eng., 1709 Jackson St., Omaha, Neb. addnl. constr. at Duluth Air Force Base. $2,177,000.

▲† **Minn., Minneapolis**—AIRPORT IMPRVS.—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, Air Force installation, clearing of building sites, Wold-Chamberlain Field. $4,000,000.

▲† **S. D., Rapid City**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., addnl. construction at Rapid City Air Force Base, near Weaver, $17,552,000. CD 3/20.

▲† **Va., Langley Field**—DORMITORIES, etc.—National Advisory Com. for Aeronautics, Langley Field, 17 dormitories, 5 mess halls, airfield paving, fuel storage, communications, lighting, utilities and storage at Langley Field, $19,282,000.

▲† **Alaska**—AIR BASE—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, plans by Manley & Mayer, Anchorage, communications center addn., $100,000; plans by Harmon, Pray & Detrich, Lloyd Bldg., Seattle 1, Wash., shopping center, $200,000; warehousing $680,000; bachelor officers' quarters, $1,000,000; barracks, $2,000,000; 300,000 sq. ft. parking apron, $400,000; family housing $2,500,000; parachute loft and shop, $30,000; bakery $400,000; chapel, $300,000; NCO service club, $250,000; enlisted mens' barracks, $200,000; fire station, $200,000. all foregoing at Eielson Air Force Base. CD 9/11.

▲† **Alaska**—AIR BASE—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, utilities and roads, Hostrup & Lyons & Assoc., 3204 W. 81 St., Inglewood, Calif. consult. engrs.; plans by Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., hospital, $4,000,000; plans by Harmon, Pray & Detrich, Lloyd Bldg., Seattle 1, Wash., shopping center, $400,000; warehouse, $2,000,000; family housing, $6,000,000; plans barracks, $2,000,000; 42x128 ft. motor vehicle storage bldg., $100,000, all foregoing at Elmendorf Air Force Base. CD 9/11.

▲† **Alaska**—WAREHOUSES, etc.—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, six 60x150 ft. heated warehouses, $100,000 each; 2 refrigerated warehouses, $130,000 each; family housing, $2,400,000; 4 gas stations, $64,000 each; cold storage warehouse, $85,000; bachelor officers' quarters, $1,500,000; laundry and dry cleaning plant, $2,000,000; automotive maintenance facility, $1,000,000; electronics bldg. $150,000; heavy equipment shop, $250,000; plans by Manley & Meyer, Anchorage communications center, $150,000, all foregoing at Ladd Air Force Base. CD 9/11.

PUBLIC BUILDINGS

Calif., Bakersfield—COURT HOUSE—Bd. Supervs. Kern Co., Court House, plans by E. L. McCoy & Francis Parsons, Hay Bldg., court house addn. $800,000.

† **Calif., Bartow**—BARRACKS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, barracks, regiment dispensary, service club, QM, repair shops and minor structures, regiment headquarters, regiment warehouse, battalion storehouse, battalion administration, BOQ, garbage can washing facilities, refuse can stands, sewage treatment IMHOFF tanks, water wells and pumping facilities, regimental facilities, warehouses, base storehouses, batt. adm., service club, library, sewage treatment plant, imhoff tanks, biolog. ponds, sewage collector system, liquid petrol. gas. system, addn. to existing bakery, minor structures, and signal facilities, classrooms and training facilities, chapel and signal facilities, mess halls, warehouses, ordnance shops, Camp Irwin, $7,532,700.

Calif., Castro Valley—SCHOOL—Castro Valley Elementary School Dist., 7531 Castro Valley Blvd., plans by Miller & Warnecke, 507 Howard St., San Francisco, Christensen Lane School. $560,000. CD 10/31/50.

▲ **Calif., Covina**—SCHOOL—Covina Union High School Dist., Covina, voted $2,000,000 bonds school facilities. Fredrick Kennedy, 1401 E. Green St., Pasadena, archt.

Colo., Pueblo—FIRE STATION, etc.—City, City Hall, voted $585,000 bonds, fire station and bridges. CD 1/15.

Colo., Pueblo—HOUSING—Housing Auth., Chas. J. Murray chn., Pueblo, 800 housing units, Approx. $500,000.

▲ **Conn., Stratford**—SCHOOL—Town, Municipal Bldg. school in Second Hill Lane, $750,000; Eli Whitney School addn., $350,000.

▲ **Conn., Wethersfield**—SCHOOL—Town Bd. Educ., Town Hall, plans by Sherwood F. Jeter, 25 Lewis St., Hartford, high school Maplewood Hill Rd., $1,875,000; plans by Willard Wilkins, 945 Asylum Ave., Hartford, brick, steel, concrete school, Wells Rd., $468,000. CD 2/19.

▲† **Fla., Camp Blanding**—CAMP—U. S. Eng., P. O. Box 4970, Jacksonville, plans by Kemp, Bunch & Jackson, Fla. Theatre Bldg., Jacksonville, headquarters, cold storage plant 3 large warehouses, mess halls, post engineers bldg., new quarters; railroad spur track about 5 mi. railroad sidings, other facilities; roads and repaving roads, drainage, etc., Briley Wild & Assocs., Daytona Beach, engrs. CD 2/28.

▲ **Ind., Tell City**—HOUSING—Tell City Municipal Housing Comn., Tell City, plans by Hawkins & Walker, Elsby Bldg., New Albany, low rental housing. $1,500,000.

▲ **Ia., Waterloo**—CITY HALL—City, defeated $1,250,000 bonds, city hall. CD 10/1.

Ky., Morganfield—HOUSING—Morganfield Housing Comn., Morganfield, 100 housing units, $800,000.

▲ **Ky., Paducah**—SCHOOLS—McCracken Co. Fiscal Court, voted $2,500,000 bonds 5 schools.

▲ **La., Opelousas**—SCHOOL—St. Landry Parish School Bd., $2,000,000 bond election Dec. 11, school imprvs. Extended date. CD 10/25.

▲† **Md., Camp Detrick**—WAREHOUSES—U. S. Eng., First and Douglas Sts., N. W., Wash. 25, D. C., plans by William Denton Jr., 1719 Eye St. N. W., Wash., D. C., and A. Hamilton Wilson, 1022 20 St. N. W., Wash., D. C., 8 masonry warehouses, metrological bldg. addn., 2 magazines $1,440,000, Beall & LeMay, 1726 M St. N. W., Wash., D. C., struct. engrs. Wilberding Co., Inc., 1822 Eye St. N. W., Wash., D. C., mech. engr. CD 3/15.

▲ **Mass., Chelsea**—HOUSING—Chelsea Housing Auth., City Hall, plans by Abbott Associates, Inc., 131 State St., Boston, eight 2 story buildings, incl., 100 units, Central Ave. Watt and Willow Sts. $1,250,000.

▲ **Mass., Lowell**—HOUSING—Lowell Housing Auth., 562 Market St., 380 housing units, Gorham St., $1,140,000. CD 1/27/50.

Mass., Rockland—SCHOOL—Town, School Bldg., Comn., plans by Thomas Worcester, Inc., engr. and archt., 84 State St., Boston, and C. H. Cole, consult. archt., 84 State St., Boston, school Memorial Park, $520,000. CD 10/5/50.

▲ **Mass., South Boston (Sta. Boston)**—MARKET—State, Market Auth., Arthur J. Sullivan, chn., 73 Tremont St., Boston, plans by Fay, Spofford & Thorndike, 11 Beacon St., Boston market between Southampton and Dover Sts., and between Albany St. N. Y. N. H. & H. R. R. tracks, $18,000,000, Praeger-Maguire Assoc., 294 Washington St., Boston assoc. consult. engrs. (for preliminary studies only). CD 2/27/51.

▲ **Mass., Worcester**—COURT HOUSE—Worcester Co., Court HS-2, Main St., court house annex, $3,000,000, Fay, Spofford & Thorndike, 11 Beacon St., Boston, consult. engrs. CD 1/13/49.

▲ **Mich., Lansing**—POWER PLANT—City, City Hall, voted $6,000,000 bonds, expanding and imprv. power plant. CD 1/16.

Mich., Ludington—HIGH SCHOOL—Ludington School Dist., Ludington, voted bonds 2 story, bsmnt., brick, concrete Junior High School. $750,000. CD 9/5/46.

▲ **Minn., Faribault**—SCHOOLS—Bd. Educ., Dr. P. Morrison, pres., plans by Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, school sys., incl. supplementary high school, grade school, 2 grade school addns. $1,500,000.

Minn., St. Paul—SCHOOL—Bd. Educ.; F. E. Connor, supt., City Hall, school, Jackson St. and Arlington Ave., school, Cumberland St. and Arlington Ave. $650,000. CD 12/13/50.

▲ **Minn., Virginia**—POWER PLANT—City, J. W. Hejda, engr., at election Nov. 6 city authorized $2,500,000 bond issue for expansion municipal power plant, incl. steam heat main extensions and municipal water sys.

▲ **Mo., Overland (St. Louis 14, P. O.)**—RECORDS CENTER—U. S. Eng., 601 Davidson Bldg., Kansas City 6, Mo., plans by Marcel Boulicault, Ambassador Bldg., 411 N. 7 St., St. Louis, Zone 1, 1 story, brick, concrete, steel 1,300,000 sq. ft. Army Publications Center, $2,700,000. CD 10/16.

▲ **Mo., St. Joseph**—SCHOOL—St. Joseph School Dist. Bd. Educ., voted $1,900,000 bonds, schools. CD 5/1/47.

N. J., Pennsauken—SCHOOLS—Pennsauken Bd. Educ., Pennsauken, plans by May-Faint & D'Anastasio, 1915 Browning Rd., 3 schools $600,000. J. C. Remington Jr., 503 Market St., Camden, engr.

▲ **N. J., Trenton**—HOUSING—Trenton Housing Auth., 875 New Willow St., housing at various sites, $2,000,000.

▲ **N. J., Trenton**—SCHOOL—Hamilton twp. Bd. Educ., 2069 Greenwood Ave., plans by Herman C. Mack, 2428 Liberty St., Junior High School, $1,500,000. Runyon & Carey, 20 Fulton St., Newark, consult. engrs. CD 10/22.

† **N. Y., Cold Springs**—MANUFACTURING—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by Fletcher-Thompson, Inc., 211 State St., Bridgeport, Conn., mfg. bldgs. for production of batteries. $866,000.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 63 Park Row, Zone 38, housing for 1,536 families on site bounded by Broadway, 125 St., Morningside Ave., 123 St., Amsterdam Ave. and LaSalle St. $23,000,000.

▲† **N. Y., West Point**—LAUNDRY—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by John & Drew Eberson, 2 W. 47 St., New York, Zone 19, laundry and dry cleaning plant, utilities. $1,950,000.

▲ **N. C., Waynesville**—SCHOOL—Haywood Co. Bd. Educ., Waynesville, bond election Dec. 15, school imprvs. $2,000,000. CD 12/13/45.

O., Akron—LIBRARY—Bd. Educ., 70 N. Broadway, defeated bonds Nov. 6, library expansion, $495,000. CD 7/25.

O., Barberton—HOSPITAL—City, City Hall, voted bonds Nov. 6, hospital, Citizens Hospital bldg. $750,000. CD 11/25/49.

▲ **O., Berea**—SCHOOLS—Berea School Dist., Berea, voted $1,725,000 bonds, schools. CD 9/11.

O., Brecksville—SCHOOLS—Brecksville School Dist., Brecksville, voted $550,000 bonds, school. CD 10/30.

▲ **O., Cincinnati**—SCHOOLS—Bd. Educ., 216 E. 9 St., voted bonds Nov. 6, school program, $14,000,000. CD 11/12/48.

O., Cleveland—MORGUE—Cuyahoga Co., Court House, voted $350,000 bonds, morgue. $745,000. CD 9/19.

▲ **O., Clyde**—SCHOOL—City, voted $1,022,000 bonds Nov. 6, school.

▲ **O., Dayton**—SCHOOLS—Bd. Educ., voted $12,000,000 bonds, schools. $13,300,000. CD 8/14.

▲ **O. Dayton**—JUVENILE COURT and COURT HOUSE—Montgomery Co., Court House, defeated $6,600,000 bonds, juvenile court and 4 story court house. CD 8/15.

▲ **O., Defiance**—SCHOOLS—Bd. Educ., Highland-Richland School Dist., Defiance, voted bonds Nov. 6, schools, Ayersville, $490,000; schools, $850,000. CD 9/26.

▲ **O., East Liverpool**—HIGH SCHOOLS—Bd. Educ., voted $2,725,000 bonds, 2 Junior High Schools, one elementary school. CD 6/19.

▲ **O., Garfield Heights**—SCHOOLS—Bd. Educ., Garfield Heights, voted $1,400,000 bonds, 2 schools. CD 10/9.

▲ **O., Girard**—SCHOOLS—City Bd. Educ., Girard, defeated $1,395,000 bonds for schools. CD 9/21.

▲ **O., Hamilton**—SCHOOLS—Bd. Educ., Hamilton, defeated bonds Nov. 6, school imprvs. $4,750,000. CD 9/6.

O., Lima—LIBRARY—Bd. Educ., Lima, defeated bonds Nov. 6, library, $800,000. CD 9/12.

▲ **O., Lima**—HIGH SCHOOL—Bd. Educ., Lima, voted $3,250,000 bonds, Central high school. CD 9/11.

O., Mansfield—COURT HOUSE, JAIL—Comrs. Richland Co. Court House, defeated bonds Nov. 6, remodel court house and jail. $500,000. CD 8/1.

O., Mayfield Heights—SCHOOLS—Mayfield School Dist., Mayfield Heights, voted $650,000 bonds, 2 schools. CD 10/30.

O., Norwalk—SCHOOL—Bd. Educ., Norwalk, voted bonds Nov. 6, school program, $708,000.

O., Rocky River—CITY HALL—City, plans by Walter G. Caldwell, Engineers Bldg., Cleveland, 1 and 2 story, brick city hall, combined with police and fire station quarters, Hilliard and Wagar Rds. $500,000.

▲ **O., Shaker Heights**—SCHOOLS—Bd. Educ., Shaker Heights, voted $1,750,000 bonds, schools and repairs. CD 10/30.

O., Tiffin—SCHOOL—Bd. Educ., Tiffin, voted bonds Nov. 6, grade school, $550,000. CD 4/24/47.

▲ **O., Toledo**—HOUSING—Toledo Metropolitan Housing Auth., 2019 Jefferson St., 500-low rental public housing units. $5,000,000.

O., Westlake—SCHOOLS—Bd. Educ., Exempted School Dist., Westlake, voted $500,000 bonds, 2 schools. CD 10/30.

O., Youngstown—SCHOOL—Bd. Educ., Austintown School Dist., voted bonds Nov. 6, school bldg. program, $800,000. CD 9/21.

▲† **Okla., McAlester**—AMMUNITION DEPOT—Naval Ammunition Depot, Bldg. 16, Naval Station, New Orleans, La., plans by Bailey & Bozalis, 1216 Colcord Bldg., Oklahoma City, Naval Ammunition Depot expansion, incl. 216 projectiles magazines; thirty-four 50x220 ft. insert storage warehouses; fifty-eight 10x14 ft. fuses bldg., 54 mi. railway lines, 54 mi. road etc. $25,000,000. Benham Eng. Co., American Natl. Bldg., Oklahoma City, consult. engr. CD 6/27.

▲ **R. I., Warwick**—HIGH SCHOOL—City, Supt. Schools, City Hall, voted $2,500,000 bonds, high school. CD 10/24.

▲ **S. D., Sioux Falls**—SCHOOLS—Bd. Educ., 107 High School Bldg., voted bonds, Junior High School and elementary school. $1,000,000. CD 10/17.

▲ **Tex., Burkburnett**—HOUSING—Burkburnett Housing Auth., Burkburnett, 200 low cost housing units. $1,500,000.

▲ **Tex., Kingsville**—HOUSING—Kingsville Housing Auth., Kingsville, 200 low-cost housing units, $1,500,000.

▲ **Tex., Orange**—HOUSING—Orange Housing Auth., Orange, 300 rural non-farm housing, $2,250,000. CD 12/14/49.

▲ **Tex., Terrell**—HOUSING—Terrell Housing Auth., Terrell, 300-low cost housing units, $2,250,000. CD 9/4.

▲ **Tex., Texarkana**—HOUSING—Texarkana Housing Auth., Texarkana, 400 addnl. housing unit, $3,000,000. CD 5/12/50.

Va., Arlington—COURT HOUSE—Arlington Co., County Court House, defeated bonds, court house. $505,000. CD 9/28.

Wash., Bellevue—SCHOOL—School Bd., Bellevue, voted bonds Enetai School, $450,000; high school addn., $500,000. Naramore, Bain, Brady & Johnanson, 904 7 Ave., Seattle, archts. CD 10/3.

▲ **Wash., Retsil**—BUILDINGS—State Dpt. Finance, Olympia, plans by V. N. Jones & Assocs., Republic Bldg., Seattle, Zone 1, two 1 story buildings at state veterans home. $500,000 each. CD 6/30/47.

▲† **Alaska, Fort Richardson**—WAREHOUSE, etc.—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, 75,000 sq. ft. quartermaster warehouse, $750,000; community center bldg., $660,000. CD 9/11, under Airports.

▲ **Alaska, Ketchikan**—HIGH SCHOOL—School Bd., Ketchikan, voted bonds, 2 story rein.-con. high school, $1,900,000. W. A. Johnson, 1st. Nat. Bank Bldg., Everett, Wash. archt. Hawthorne Eng. Service, Ketchikan, consult. engrs. CD 5/21.

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Ont., St. Catherines—SCHOOL—Bd. Educ., J. W. Davis, secy., 45 Welland Ave., plans by MacBeth & Williams, 104 Queen St., school, Lake St., Grantham Twp. $620,000. CD 10/23.

▲ Que., Quebec City—HOSPITAL—Jeffery Hale Hospital, Dr. W. G. Stobo, pres., Board, 4 St. Chyrille St., plans by L. Mainguay, 1045 Chaumont Ave., Sillery, hospital, St. Sacrament Ave. and Ste. Foye Rd. $2,500,000. CD 2/21/50.

COMMERCIAL BUILDINGS

▲ Ala., Fort McClellan—HOUSING—U. S. Eng., P. O. Box 1169, Mobile, Zone 7, construct, manage and finance 125 unit rental housing.

Fla., Sanford—HOSPITAL—Bert Fish Memorial Hospital, c/o G. Medwin Peek, archt., Pioneer Bldg., Deland, Fla., hospital, $767,000.

Ga., Macon—OFFICE—Southern Bell Telephone Co., Hurt Bldg., Atlanta, plans by Armistead & Saggus, Candler Bldg., dial and toll office, $500,000. CD 11/28/49.

▲ Ia., Davenport—HOSPITAL—Mercy Hospital, 1326 Lombard St., plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., concrete brick, concrete hospital addn., $2,100,000. CD 10/10.

Ky., Louisville—DEPARTMENT STORE—Federated Department Stores, Inc., 207 Race St., Cincinnati, O., department store, $500,000.

Mich., Lansing—HOMES—Chippawa Mills, Inc., Howard J. Cook, pres., 109 N. Cedar St., single homes on 85 building sites, Mt. Hope Ave., Nulett and Okemos Rds., Meridian Twp. $900,000.

▲ N. Y., Jamaica—OFFICE—New York Telephone Co., 140 West St., New York, Zone 7, plans by Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, Zone 17, 3 story, 172x276 ft. telephone office bldg., 164 St. and Hillside Ave. $1,500,000.

▲ N. Y., Rome—HOUSING—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by L. Einhorn, 93 State St., Albany, construct, manage, finance, 250 unit Wherry Housing, at Griffiss Air Force Base, $2,250,000.

▲† N. Y., Sampson—HOUSING—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by Backus, Crane & Love, 232 Delaware Ave., Buffalo, construct, manage, finance, 1,000 unit Wherry Housing at Sampson Air Force Base, $10,500,000.

O., Cincinnati—STORE—Federated Department Stores, Inc., 1440 Broadway, New York 18, N. Y., department store, $720,000.

▲ O., Cleveland—HOSPITAL—St. Alexis Hospital, Sister of St. Francis, 5163 Broadway, plans by George S. Rider Co., Terminal Tower, 7 story hospital, internes and residents, and new chapel, $1,500,000.

▲ O., Dayton—HOSPITAL—Good Samaritan Hospital, Sister Cyril, supt., 1425 W. Fairview St., hospital addn., 120-bed maternity wing, $1,500,000.

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▲ Pa., Erdenheim (Phila. P. O.)—RESIDENCES—Owner, c/o Samuel Willig, 121 S. Broad St., Phila., residential development, Paper Mill Rd. and Haws Lane. $6,000,000.

Pa., Wynnewood—SYNAGOGUE—Temple Adath Israel, c/o George Friedland, Montgomery and Wynnewood Aves., plans by George Neff, 1520 Locust St., and I. Demchick, 246 S. 15 St., both Phila., synagogue and community bldg. $900,000.

▲ Tex., Houston—OFFICE—Texas Co., Texas Bldg., Houston, 3 story, bsmnt. office, Main St. across frum S. Main State Bank. $1,000,000.

Wash., Bellevue—HOUSES—Bell & Valdez, Bellevue, 47 houses. $.34,000.

Wash., Seattle—HOUSES—Lovell Constr. Co., 12510 15 Ave. N. E., plans by R. L. Durham & Assocs., 1100 Denny Way, 67 frame houses, 1 Ave. N. W. between W. 155 and W. 160 Sts. $603,000.

INDUSTRIAL BUILDINGS

▲ Calif., Buena Park—PLANT—U. S. Electrical Motors Inc., Buena Park, 250,000 sq. ft. motor mfg. plant on 85 acre tract, $3,500,000.

▲ Ill., Wood River—PLANT—Shell Oil Co., H. D. Dale, Refinery Mgr., Wood River, and 50 W. 59 St., New York 20, N. Y., alkylation plant extensions, $3,800,000; basic refining equipment, $17,850,000; utilities, products handling and blending facilities, $7,400,000; addnl. bldgs. and other misc. construction, $13,450,000. Certificate of necessity granted.

▲ Kan., Great Bend—POWER PLANT—Western Light & Telephone Co., D. C. Tinker, vice pres., Great Bend, power plant, $3,000,000.

▲ Mont., Kalispell—PLANT—Anaconda Copper Mining Co., 25 Broadway, New York, N. Y., primary aluminum plant. $60,000,000. CD 12/28/50, under Harvey Machine Co., Inc., Torrance, Calif., as owner.

O., Woodville—PLANT—Brush Beryllium Co., Luckey, plant for copper division. $730,500.

▲ Pa., Pitcairn—SHOP—The Pennsylvania Railroad, D. L. Sommerville, ch. engr. (Central Region) Penna. Station, Pittsburgh, 1 story, 94x346 ft., steel diesel locomotive shop, $1,000,000.

▲ Pa., Springdale—POWER PLANT—West Penn Power Co., West Penn Bldg., Pittsburgh, power plant addn. and coal handling, $18,000,000. Sanderson & Porter, 52 Williams St., New York, N. Y., engrs.

▲ Tex., Amarillo—REFINERY, etc.—The Texas Co., Texas Bldg., Houston, refinery addn. near here, $18,000,000; oil products storage, $300,000.

▲ Tex., Borger—PLANT—Phillips Oil Co., Bartlesville, Okla., alkylation plant expansion. $15,500,000. CD 5/24/51.

▲ Tex., Port Arthur—PLANTS—Gulf Oil Corp., Port Arthur, sulphuric acid unit, $789,000; acid sludge decomposition plant, $1,529,855. CD 3/22/51.

▲ Wash., Mead—INDUSTRIAL, etc.—Kaiser Aluminum & Chemical Corp., 1924 Broadway, Oakland, Calif., industrial bldg. and service extension, $1,000,000; warehouse, $75,000; storage bldg., $30,000; maintenance shop, $35,000; garage and storage, $20,000; storage $75,000; extension to electric service bldg. $100,000; washroom extension, $20,000. CD 9/24.

▲ W. Va., Follansbee—MILL, etc.—Follansbee Steel Corp., 42 Vanderbilt Ave., New York, 17, N. Y., hot strip mill, melt shop, docks tracks yards shops and other facilities, $33,000,000. CD 11/29/48.

▲ Wyo., Powell—PLANT—Crown-Zellerbach Corp., 6301 Airport Way, Seattle, Wash., Raymonier Inc., Skinner Bldg., Seattle, Wash., and Soundview Pumping Co., Powell, Wyo., sulphur recovery plant, $1,314,000.

B. C., Ocean Falls—RECOVERY UNIT—Pacific Mills Ltd., Campbell Ave., Vancouver, 75-ton recovery unit for installing in kraft mill, $800,000.

UNCLASSIFIED

▲ Kansas—RURAL DISTRIBUTION LINES—Central Kansas Electric Co-operative, Great Bend, 725 mi. rural distr. lines, 101 mi. tie lines, generator and transmission facilities, 79 mi. transmission lines, sub-station and two way radio, $3,400,000. Frank Horton & Co., Lamar, Mo., consult. engrs. for distr. and transmission lines. B. C. Kirkwood & Assoc., Wirthman Bldg., Kansas City, Mo., consult. engrs. for power plant. CD 9/27/48.

North Carolina—RURAL DISTRIBUTION LINES—Davie Electric Membership Corp., Mocksville, sys. imprvs. and new construction, Davie Co. $850,000. CD 8/25/49.

North Carolina—RURAL DISTRIBUTION LINES—Pitt-Greene Electric Membership Corp., Farmville, sys. imprvs., headquarters facilities, 2-way communication sys. and new constr., Pitt Co. $625,000.

North Carolina—RURAL DISTRIBUTION LINES—Union Electric Membership Corp., Monroe, sys. imprvs. and new construction, Union Co. $825,000. CD 7/1/48.

North Carolina—RURAL DISTRIBUTION LINES—Woodstock Electric Membership Corp., Beaufort, rural distr. line sys. imprvs., 2-way communication sys., headquarters facilities, new constr., Carteret Co. $505,000.

Ohio—RURAL DISTRIBUTION LINES—North Central Electric Co-operative, Attica, 97 mi. rural distr. lines, 8 mi. 69 kv transmission and sys. imprvs., Seneca Co. $605,000. CD 7/29/48.

▲ Texas—OIL PIPE LINE ELECTRIC WORK—Gulf Refining Co., Gulf Bldg., Houston, electric work on crude oil pipe line, Colorado City to Sour Lake, Wortham and Lucas, $1,035,000. Rayburn M. Hamilton, 1705 W. Gray St., Houston, consult. engr.

Va., Arlington—PLAYGROUNDS and PARKS—Arlington Co., County Court House, voted bonds, playgrounds and parks, $882,000. CD 9/28.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Chelsea—BOILER PLANT—B.A. 12/3—State, Bd. Trustees, Soldiers' Home, 91 Crest Ave., Contr. 3, boiler plant exten., Soldiers' Home, $170,000. Plans deposit $20, refundable. CD 12/5/50.

Mass., Wenham—SCHOOL—B.A. 12/5—Town, School Bldg. Comm., Town Hall, 60×250 ft., masonry Center Elementary School, $350,000. Irving W. Hersey & Assoc., Dover Rd., Durham, N. H., archts. CD 10/23.

† **Mass., Boston**—HOSPITAL—B.A. 12/18—Pub. Bldgs. Service, General Services Admin., 620 P.O. and Court House, Boston, Zone 9, misc. repairs at public health service hospital.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord.

A. E. Williams Constr. Co., Inc., 100 Airport Rd., Hartford, Conn., LB. $234,546, surf. tr. grav. 3.255 mi., N.H. 28, town of Wolfeboro. Bids Nov. 15. CD 11/7.

† **Vara Constr., Inc.**, 718 Huntington Ave., Boston, Mass. LB $223,000, jet fuel sys., Spec. 30263, South Weymouth, WEYMOUTH, MASS. Dist. P. Wks., First Naval Dist., 495 Summer St., Boston, Mass. Bids Nov. 14. CD 10/23.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. J., Ancora—B.A. 12/4—At office Fred V. Ferber, dir., Division Purchase & Property, State House, W. State St., Trenton, Zone 7, three gravel well units for new Fourth Mental Hospital, Winslow Township.

† **New York**—B.A. 12/4—U. S. Eng., 80 Lafayette St., New York, Zone 13, emergency dam recesses at Troy Lock and Dam, Hudson River, CIVENG 30-075-51-25.

New York—CABLE GUIDE RAILING, etc.—B.A. 12/4—At office Henry A. Cohen, dir., Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, cable guide rail 3.82 mi., West Point-Central Valley, S. H. 5328 A, Cornwall-West Point, Pts 1 and 2, S. H. 5498, Contr. No. R. C. 51-84, Orange Co., $21,000; traffic control system 3.77 mi., Hempstead-Farmingdale, Pt. 3, S. H. 9055, Contr. R. C. 51-73, Nassau Co., $74,000. Plans deposit $10 each.

† **Maryland**—B.A. 12/5—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore, Zone 3, maintenance and imprvt. dredging in Brewerton-Fort McHenry Angle, and Fort McHenry Sect., Baltimore Harbor and channels in Patapsco River leading to Baltimore, 4 statute mi. southeast from Fort McHenry, CIVENG 18-020-52-14. CD 11/5.

† **MARYLAND**—B.A. 12/6—At office H. J. Spelman, div. engr., Dpt. Commerce, Bureau P. Rds., 1440 Columbia Pike, Arlington, Va.

Prince Georges Co.—bridge over B. & O. R. R. Baltimore-Washington Parkway, Proj. 1A4.

† **Md., Andrews Air Force Base**—WAREHOUSES—B.A. 12/6—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., 2 warehouses, warehouse area, Eng. 49-08-52-18 (13). CD 10/31.

N. Y., New York—SUB-STATION—B.A. 12/6—Bd. Transportation, 370 Jay St., Brooklyn, Zone 1, (1) general constr. (2) plumbing for Tudor Substation of the Flushing Line, Manhattan Boro.

Md., Hyattsville—B.A. 12/7—Washington Suburban Sanitary Comn., Hamilton St., Suburbursen type rein.-conc. slab-and buttress or gravity type Rocky Gorge Dam and pumping plant on Patuxent River, near Laurel. Plans deposit $100, Ambursen Engineering Corp., 295 Madison Ave., New York, N. Y., consult. engrs. CD 9/14.

BIDS ASKED—BUILDINGS

N. Y., Brooklyn—SCHOOL—B.A. 12/3—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical and lighting fixtures for P. S. 268, E. 53 St. and Clarkson Ave. Plans deposit $15 general constr., $7 each others. CD 5/15.

N. Y., Great Kills—SCHOOL—B.A. 12/3—Supt. School Bldgs., Design and Construction, 49 Flatbush Ave. exten. Brooklyn, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical and lighting fixtures for P. S. 8 addn., Lindenwood Ave. and Park Terrace. Plans deposit $15 general constr., $7 each others. CD 5/18.

N. Y., Flushing—HIGH SCHOOL—B.A. 12/4—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical and lighting fixtures for new Junior High School 168, vicinity of 155 St. and 72 Ave., Queens Boro. Plans deposit $15 general constr., $7 each others. CD 5/20/49.

▲ **N. Y., Hicksville**—SCHOOLS—B.A. 12/4—Bd. Educ., Union Free School Dist. 17, Hicksville, school, Old Country Rd. $500,000; grade school, Dutch Lane, $500,000.

N. Y., Bayside—SCHOOL—B.A. 12/5—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical and lighting fixtures for Junior High School 74, vicinity 210 St. and Horace Harding Blvd., Queens Boro. Plans deposit $15 general constr. $7 each others. CD 5/20/49.

N. Y., Far Rockaway—SCHOOL—B.A. 12/5—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical and lighting fixtures for P. S. 215, Briar Pl., Brookhaven Ave. extending to Grassmere Terrace. Plans deposit $15 general constr. $6, each others.

N. Y., New York—SCHOOL—B.A. 12/5—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr., P. S. 24, Independence Ave. between W. 235 and W. 236 Sts., extending westerly approx. 233 ft. from intersection of Independence Ave. and W. 235 St. Plans deposit $15. CD 9/8/48.

▲ **N. J., Orange**—HOUSING—B.A. 12/12—Housing Auth. of City of Orange, 369 Main St., Housing Project N. J. 25-1, 140 units, Parrow St. Oakwood Ave., Wilson and Central Places, $1,722,000.

N. Y., Central Islip—POWER PLANT—B.A. 12/12—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, power plant, Bldg. No. 101 at Central Islip State Hospital. Plans deposit $30. CD 11/28/45.

N. Y., Geneva—STEAM TUNNELS, etc.—B.A. 12/12—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, steam tunnels and service connections at State Agricultural Experiment Station. Plans deposit $20. CD 7/11/45.

▲ **Pa., Phila.**—HOSPITAL—B.A. 12/12—General State Auth., 18 and Herr Sts., Harrisburg, hospital bldg. for Mercy-Douglas Hospital, 50 and Woodlawn Sts, $2,-500,000. Plans deposit $25, Howell L. Shay, Packard Bldg., 15 and Chestnut Sts., archt. A. F. Jones, c/o owner, ch. engr. CD 6/30/49, under Commercial Buildings.

▲† **N. J., Fort Monmouth**—SCHOOL and BARRACKS—B.A. 12/27—U. S. Eng., 80 Lafayette St., New York 13, N. Y., school and barracks, $4,000,000. Plans deposit $55.

BUILDINGS

LOW BIDS AND CONTRACTS

Hilton Terrace Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y., Owner Builds. Approx. $700,000, 60 HOUSES, Stewart and Helena Aves. BETHPAGE, N. Y.

▲ **Harry Jereski, Inc.**, 420 Lexington Ave., New York 17, N. Y. LB $1,045,900, SCHOOL, P. S. 27 addn., Nelson and Hicks Sts., BROOKLYN, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 14 (Correction—contractors name). CD 11/20, under LB.

▲ **Carlton Gables Homes**, c/o Ryder, Struppmann & Neumann, archts., 60 E. 42 St., New York 17, N. Y. Owner Builds. Approx $15,000,000. 2,000 HOMES on 400 acre tract at Sunrise Hy. and Freeman Ave., ISLIP, N. Y.

Ledoux & Co., Inc., 155 6 Ave., New York 13, N. Y., project indefinitely in abeyance, metallurgical testing LABORATORY, Alfred St., TEANECK, N. J. CD 11/2.

Fairhaven Constr. Co., 1403 Munsey Bldg., Baltimore 2, Md. Owner Builds. $626,000. One hundred 2 story, bsmnt., 18x32 ft., masonry DWELLINGS, Ina, Raspe, Eleanor and Belle Vista Aves., BALTIMORE, MD.

▲ **Northbrook Building Co.**, N. Guilford Ave., Baltimore Md. Owner Builds. $1,500,000. Three hundred 2 story, brick block DWELLING, Eastern Ave. and North Point Rd., BALTIMORE, MD.

State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 1, Md., rejected, bids. POWER PLANT addns., alterations, Springfield State Hospital, SYKESVILLE, MD. LB $598,987. Will re-advertise. CD 10/31, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 7 Alabama

STREETS AND ROADS

December 7 Alabama

† **Kentucky**—B.A. 12/4—U. S. Eng., 830 W. Broadway, Louisville, Zone 1, flood protection State Fair Grounds Pumping Plant, CIVENG 15-029-52-44.

† **La., Shreveport**—STORAGE MAGAZINES—B.A.12/4—U. S. Eng., 300 Broadway, Little Rock., Ark., ammunition storage magazines at Barksdale Air Force Base, Inv. 52-17.

N. C., Red Springs—B.A. 12/4—Town, W. B. McLean, mayor, Red Springs, 11,592 lin. ft. 8 and 12 in. sewers; 42 manholes; 14,280 lin. ft. 2- to 8-in. water mains. Plans deposit $10. Matthews & Butler, Laurinburg, engrs.

† **Louisiana**—B.A. 12/6—U. S. Eng., P.O. Box 60, Vicksburg, Miss., 80,000 squares articulated concrete mattress at Delta, 70,000 squares at Vidalia, Delta and Vidalia Counties. CD 6/26/46.

† **Fla., Cocoa**—SHOPS—B.A. 12/7—U. S. Eng., P. O. Box 4970 Jacksonville, missile assembly shops at Patrick Air Force Base, Inv. 52-50. (Correction-status) CD 10/31, under CA.

† **La., Lake Charles**—WAREHOUSE—B.A. 12/7—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., base supply warehousing, Lake Charles Air Force Base, Eng. 41-243-52-32. Extended date. CD 10/21.

† **Tennessee**—B.A. About 12/10—U. S. Eng., 303 U. S. Court House, Nashville, Zone 1, construct Old Hickory Lock and Dam, Cumberland River, Davidson Co. approx. 10 mi. northeast of Nashville. Serial No. CIVENG. 40-058-52-5. Plans deposit $25.

† **Fla., Cocoa**—WHARF, etc.—B.A. 12/11—Canaveral Port Authority, Cocoa, marginal wharf and dolphins at Canaveral Harbor, in Brevard Co. Plans deposit $5. Reynolds, Smith & Hill, 227 Park St., Jacksonville, engrs. CD 10/31/46, under Fla., Canaveral.

† **Fla., Eglin Air Force Base**—QUARTERS, etc.—B.A. 12/11—U. S. Eng., P.O. Box 1169, Mobile, 7, Ala., constr. airmens quarters and combination mess and administration bldgs. at main field, Eng 01-076-52-31B. CD 2/20/50.

† **Fla., Tampa**—AIRFIELD PAVING—B.A. 12/11—U. S. Eng., P.O. Box 4970, Jacksonville, addnl. airfield paving and pavement overlay MacDill Air Force Base, Hillsborough Co., 4 mi. southwest of Tampa, Eng. 08-123-52-59. CD 1/23/48.

† **La., Shreveport**—AMMUNITION STORAGE—B.A. 12/11—U. S. Eng., 300 Broadway, Little Rock, Ark., Job. No. Barksdale AFB A52-2 (Item 20), ammunition storage (5 igloos), Barksdale Air Force Base, adjacent to Bossier City, Bossier Parish, Eng. 03-050-52-17. CD 5/2.

BIDS ASKED—BUILDINGS

La., Grambling—PHYSICAL EDUCATION—B.A. 12/4—State Bd. Educ., Capitol Bldg., Baton Rouge, physical education and classroom bldg. Plans deposit $50. Smith & Padgett, 512 Ouachita National Bank Bldg., Monroe, archts.

Miss., Greenville—PLANT—B.A. 12/4—City, electric power and lighting sys. for Greenville Mills plant under construction, Plans deposit $40; Mallett & Assoc., 416½ E. Amite St., Jackson, engrs.

Miss., Magnolia—COURT HOUSE—B.A. 12/4—Pike Co., Court House, court house addn., Plans deposit $25.

Fla., Miami—SCHOOL—B.A. 12/5—Dade Co. Bd. P. Instruction, 275 N. W. 2 St., Pinewood Park Elementary School. Plans deposit $25. Stefan H. Zachar, 1630 Lenox Ave., archt. CD 11/5/43.

La., Monroe—HOSPITAL—B.A. 12/5—State, Div. Admin., Capitol Annex, Baton Rouge, maternity unit at E. A. Conway Memorial Hospital. Plans deposit $50, Smith & Padgett, Monroe, archts. CD 4/4/45.

Ga., Dublin—SCHOOL—B.A. 12/6—City, Vines Street Colored Elementary School. Plans deposit $50. McDonald & Co., 914 Walton Bldg., Atlanta, archts.

Va., Charlottesville—GENERATING UNIT—B.A. 12/6—University of Virginia, Charlottesvillee, Steam Generating Unit 2 for installation in power plant. Plans deposit $10. Wileye & Wilson, 711 W. Main St., Richmond, Va., engrs. CD 12/6/49.

Miss., Grenada—COURT HOUSE—B.A. 12/10—Grenada Co., court house addns. Estes W. Mann, 967-8 Shrine Bldg., Memphis, Tenn., archt.

Ala., Roanoke—HOSPITAL—B.A. 12/11—Randolph County, Roanoke, hospital. $400,000. Plans deposit $50. Extended date. Chas. H. McCauley, Jackson Bldg., Birmingham, archts. CD 9/27.

Ga., Athens—VETERINARY BLDG.—B.A. 12/11—Bd. Regents University System of Georgia, 20 Ivy St. S. E., Atlanta, veterinary bldg. addn. Cooper, Bond & Cooper, Henry Grady Bldg., Atlanta, archts.

La., Houma—SCHOOL—B.A. 12/11—Terrebonne Parish School Bd., Houma, Southdown High School for Negroes. Plans deposit $50, Wogan & Bernard, Pere Marquette Bldg., New Orleans, archts. CD 10/3.

N. C., Sanford—HOSPITAL—B.A. 12/12—Lee Co., Sanford, hospital addn. $600,000. Walter Hook & Assoc., 303½ W. 4 St., Charlotte, archts. CD 1/31/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Wannamaker & Wells**, Orangeburg, S. C., and **Cherokee, Inc.**, Sumter Hy., Columbus, S. C., CA. $1,607,965, North Fork Water Supply Dam, ASHEVILLE, N. C. City, Asheville, N. C. Bids Nov. 1. CD 11/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Thompson & Street Co.**, Pineville Rd., Charlotte, N. C. LB $1,394,940, 200 unit Belvedere HOMES, one admin. bldg., 43 dwellings, 200 units, CHARLOTTE, N. C. Charlotte Housing Auth., 831 Seigle Ave., Charlotte, N. C. Bids Nov. 15. CD 10/18.

W. H. Weaver Constr. Co., Greensboro, N. C., LB. $834,600 HOUSING units, LUMBERTON, N. C. Lumberton Housing Auth., Lumberton, N. C. Bids Nov. 15. CD 10/17.

O. P. Woodstock Co., 430 W. Monroe St., Jacksonville, Fla., CA, $468,066, Matthew Gilbert School addn., etc., JACKSONVILLE, FLA. Duval Co. Bd. Instruction, 605 Ocean St., Jacksonville, Fla. Bids Nov. 14. CD 11/8.

St. Bernard Parish School Bd., St. Bernard, La. rejected bids Oct. 17, school, VIOLET, LA. LB $496,496. CD 9/19.

▲ **Algernon Blair Co.**, First National Bank Bldg., Montgomery, Ala. CA approx. $3,000,000. construct, 400 addnl. HOUSING units, FORT CAMPBELL, KY. Mid-

west Mortgage & Finance Co., (Sponsor) 2545 S. Third St., Louisville, Ky., for Dpt. Navy. E. W. Augustus, 31 N. Wallace Ave., Louisville, Ky., archt. CD 10/9 under CA.

† Erhart Knopf Constr. Co., 1110 E. Broadway, Louisville, Ky. LB $638,500. 7 prefabricated SCHOOLS, McCracken Co., PADUCAH, KY. Regional Engineer's Office, Army, Federal Housing & Home Finance Agency, 206 LaSalle St., Chicago, Ill. Bids Nov. 9. CD 10/29.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 11, Indiana
STREETS AND ROADS
December 11, Indiana

Mich., Detroit—PARK—B.A. 12/4—At office G. R. Thompson, city engr., Dpt. Parks & Recreation, Guardian Bldg. Contr. Pk 111B, piling and catwalks at Memorial Park Marina, below Jefferson, between Crane and Fischer Sts. CD 8/30/44.

† O., Columbus—REPAIR SHOP—B.A. 12/4—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., armament electronics (K-1) camera and instrument repair shop, Lockbourne Air Force Base, approx. 10 mi. southeast of here, Franklin Co., Serial No. ENG 46-022-52-72. Extended date. CD 10/30.

Mich., Flint—B.A. 12/6—City, Albert C. Hull, dir. Purchases, 1,200 acres clearing land to take backwater from Earl L. Holloway Dam. Plans deposit $10, refundable. CD 4/10/47.

BIDS ASKED—BUILDINGS

Ill., Sycamore—SCHOOL—B.A. 12/6—School Dist., 427 Sycamore, 50,000 sq. ft. school, $425,000. Berger Kelly & Samuelson, Lincoln Bldg., Champaign, archts. CD 3/17/49.

† O., Toledo—WAREHOUSES—B.A. 12/7—U. S. Eng., 237, Fourth Ave., Huntington 18, W. Va., 2 general purpose warehouses, one warehouse for flammable material, operations office and parking area and hardstanding, Rossford Ordnance Depot, Serial No. ENG 46-022-52-73. CD 10/23.

Ill., Marengo—FACTORY—Bids Asked—Arnold Engineering Co., Marengo, factory, $500,000. T. Frank Quilty, 18 S. Loomis St., Naperville, engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, rejected bids Nov. 6, grading, paving, Type T-71, Parts 1 and 2, S.R. 57, Lorain Co. est. $1,012,050; grading, widen., surf., Type T-35, S. R. 153, Stark Co. est. $70,400; Canceleid bids to have been opened Nov. 6, Type T-71 and steel, concrete structure, U. S. 8—6 and 23, Wood Co. CD 10/26.

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15.

The Crawford Constr. Co., 640 N. Union St., Galion, O., CA $1,98,742, est. $212,000; type T-32 on B-20 and steel concrete structures, SR 67, Seneca Co.

Harley E. Calvin & Co., Marietta, O., CA $149,966, est. $154,050, Type T-32 on SS-5 and steel, concrete structures, S. R. 138, Highland Co.;

C. F. Reploogle, P. O. Box 308, Circleville, O., CA $3,142U, est. $343,700, Type T-35 and B-20, concrete structures, SR 665, Franklin Co.;

Complete General Constr. Co., 1221 E. 5 Ave., Columbus, O., CA $448,756, est. $518,500, Type T-35, altering fascia girders of an existing railroad bridge, U. S. R. 40, Pts 1 and 2, Franklin Co.;

W. J. Elliott, McConnelsville, O., CA $70,517, est. $66,600. Type T-71 and concrete structures, S. R. 78, Athens Co. Grand total $1,219,401. Bids Nov. 6. CD 10/26.

▲ John C. Tully, 33 N. La Salle St., Chicago, Ill., LB $1,798,612, Harms Road Interceptor Sewer 2, CHICAGO, ILL. Sanitary District of Chicago, 910 S. Michigan Ave., Chicago, 5, Ill. Bids Nov. 8.

† Ellis Constr. Co., 16803 Greenfield St., Detroit, Mich. CA $460,000. 1 story, brick, masonry school, SELFRIDGE AIR FORCE BASE, MICH. U. S. Eng., U. S. Custom House, 100 W. Larned St., Detroit, Mich. CD 11/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† George Sheaf & Co., 449 Neilston St., Columbus, O., CA $1,365,606, 200x1,000 ft. WAREHOUSE, Serial No. ENG 46-022-52-66, Marion Engineer Depot, MARION, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., Bids Nov. 15. CD 10/22.

† A. Bentley & Sons Co., 201 Belmont St., Toledo, O., CA $492,492, 124x403 ft., steel, concrete block Base Maintenance SHOP addn., incl. heating, water, light and ventilation facilities, Serial No. ENG 46-022-52-65, Rossford Ordnance Depot, TOLEDO, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Nov. 8. CD 10/10.

▲ Bates & Rogers Constr. Corp., 600 W. Jackson St., Chicago, 6, Ill., CA $10,000,000, water tunnel for steel mill, EAST CHICAGO, IND. Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O. CD 11/1.

Geupel Constr. Co., Home Masur Bldg., Indianapolis, Ind., CA $500,000, large Plant addn., TIPTON, IND. Perfect Circle Co., Hagerstown, Ind.

▲ Crane Constr. Co., 505 N. Michigan Ave., Chicago, 11, Ill., CA $3,500,000, 23 story, bsmnt., 400-unit APARTMENT, Lake Shore Dr. and Belmont St., CHICAGO, ILL. John Mack, promotion, c/o Shaw, Metz & Dolio, archts., 208 S. LaSalle St., Chicago, 4, Ill., Awarded Nov. 12. CD 8/9/49.

▲ Freevol-Smedberg Co., 5807 W. Chicago Ave., Chicago, 44, Ill. CA $1,000,000, magnesium FOUNDRY addn., CHICAGO, ILL. Howard Foundry Co., 4940 Bloomingdale St., Chicago, 29, Ill. Awarded Nov. 9.

Power Constr. Co., 212 S. Marion St., Oak Park, Ill., CA $604,837, Goodman Ave. and Forest Road SCHOOL addns., LA GRANGE, ILL. Bd. Educ. School Dist. 102 Cossitt Ave. School, 115 W. Cossitt Ave., La Grange, Ill. Bids Oct. 30. CD 11/9, under LB.

† Blauner Constr. Co., 208 N. Wells St., Chicago, 6, Ill., LB, $352,300, KITCHEN addns., alterations Wing B, Bldg. 70, incl. road, grading, plumbing dietetic equipment, heating, ventilating, electrical work, electric elevator, outside services and certain other items, WOOD, WIS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Nov. 13.

Beckering Constr. Co., 2140 Horton St., Grand Rapids, Mich. CA $500,000. 3 story, brick, masonry HOME for Children, CUTLERVILLE, MICH. Christian Reformed Church, Cutlerville, Mich. Bids Nov. 1. CD 10/31.

▲ Bryant & Detwiler Co., 2104 Penobscot Bldg., Detroit, Mich. LB $1,419,500, 2 story, bsmnt., brick, steel, concrete Thomas A. Edison Junior High School, DEARBORN, MICH. City, James A. Lewis, supt., Dearborn, Mich. Bids Nov. 7. CD 10/23.

George W. Auch Co., 3456 Mt. Elliot St., Detroit, Mich. CA $400,000. 2 story, bsmnt., brick, steel Fred E. Upton Elementary SCHOOL, ROYAL OAK, MICH. City, Harold R. Rogers, secy., Bd. Educ., Royal Oak, Mich. Bids Oct. 24. CD 10/5.

Perron Constr. Co., 6525 Lincoln St., Detroit, Mich. CA $400,000. 1 story, bsmnt., brick, stone CHURCH, Overlake Dr., ST. CLAIR SHORES, MICH. St. Joan of Arc Parish, St. Clair Shores, Mich. Bids Oct. 9. CD 10/2.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 5, Kansas December 7, Minnesota
STREETS AND ROADS
December 5, Kansas December 7, Minnesota

† Nebraska—STRUCTURAL STEEL—B.A. 12/4—Bureau Reclamation, Dpt. Interior, P.O. Box 20, Casper, Wyo., furnishing, del. structural steel for Ogallala sub-station, Transmission Div., Missouri River Basin Proj., Inv. No. 703S-218, adv. ENR 11/29.

Tex., Timpson—B.A. 12/4—City, sewer lift station and impv. treatment plant $60,000. Wisenbaker, Fix & Assoc., 1104½ S. Bois d' Arc St., Tyler, Tex., engrs. CD 10-29, under LB.

† MINNESOTA—B.A. 12/5—Dpt. Agriculture, Forest Service, 623 N. Second St., Milwaukee 3, Wis.,

Lake Co.—5.2 mi. 20 ft. wide, Spruce Forest Rd. No. 181, incl. furnishing, install drainage structures, Superior National Forest, 12.2 mi. Superior National Forest Service Development Proj. $80,000.

† Arkansas—B.A. 12/6—U. S. Eng., P. O. Box 60 Vicksburg, Miss., revetment construction, Item R-90 O-L, Arkansas River Bank Stabilization Works, Plum Bayou to Rob Roy, on left, descending bank approx. 9 mi. above mouth of Arkansas River, between Plum Bayou and Rob Roy railroad bridge, Jefferson Co., Serial No., CIVENG 22-052-52-66. CD 3/9/45.

† Mont., Great Falls—OPERATIONS BLDG.—B.A. 12/6—U. S. Eng., City-County Airport, Walla Walla, Wash., operations bldg. and control tower at Great Falls Air Force Base, Eng. 45-164-52-4. Plans deposit $25. G. H. Shanley, First National Bank Bldg., Great Falls, archt. CD 11/5.

† Wyoming—GROUND WIRES—B.A. 12/6—Bureau Reclamation Center, Casper, repairing overhead ground wires on existing Seminoe-Casper 115 kilovolt transmission line, Kendrick, Proj., Spec. No. 703C-225, adv. ENR 11/29. CD 5/25/44, under Earthwork, Waterways.

† Tex., Texarkana—B.A. 12/11—U. S. Eng., Box 61, Tulsa 2, Okla., water lines, Inv. No. ENG 34-066-52-17. Approx. $45,000. CD 7/6, under Public Buildings.

† Tex., Texarkana—B.A. 12/11—U. S. Eng., Box 61, Tulsa 2, Okla., sanitary sewer lines, Inv. No. ENG 34-066-42-17. Approx. $60,000. CD 7/6, under Public Buildings.

† Tex., Texarkana—B.A. 12/11—U. S. Eng. Box 61, Tulsa, 2, Okla., earthwork, site drainage, grading, Inv. No. Eng 34-066-52-17. Approx. $65,000. CD 7/6, under Public Buildings.

† Tex., Texarkana—B.A. 12/11—U. S. Eng., Box 61, Tulsa 2, Okla., 25,000 sq. yd. 8 in. rein.-con. pavement, Inv. No. ENG 34-066-52-17. Approx. $60,000. CD 7/6, under Public Buildings.

† Tex., Texarkana—FUEL SYSTEM, etc.—B.A. 12/11—U. S. Eng., Box 61, Tulsa 2, Okla., fuel sys., Approx. $100,000; electric distr. sys., Approx. $60,000; taking up and relaying railway lines, Approx. $60,000, Inv. No. ENG 34-066-52-17. CD 7/6, under Public Buildings.

† South Dakota—TRANSMISSION LINES—B.A. 12/11—Bureau Reclamation, Dpt. Interior, Huron, Fort Randall-Sioux City 230 kilovolt transmission line, Transmission Div., Missouri River Basin Proj. DC 3546. Extended date. CD 10/2.

† Montana—PASSENGER ELEVATORS—B.A. 12/11—Bureau reclamation Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, installing 2 electrically operated passenger elevators, complete, south fork of Flathead River, 9 mi. southeast of Columbia Falls, Spec. DC 3589. CD 5/25/44 under Earthwork, etc.

Kan., Olathe—B.A. 12/18—Comrs. Johnson Co., Court House, Main Sewer Dist. 1, 13,728 ft. c.i. pipe, 2 pumps, 1,800 gal. per min. capacity, $796,440 Myron Nelson, distr. engr. CD 8/3.

▲† South Dakota—B.A. About 1/9—U.S. Eng. 1790 Jackson St., Omaha 2, Neb., earthwork, Stage II (a) 6,270,000 cu. yd. discharge channel excava. (b) 420,000 cu. yd. borrow area excava. (c) 3,078,000 cu. yd. compacted fill (d) 2,465,000 cu. yd. uncompacted fill. (e) 332,000 cu. yds. impervious blanket (f) 37,000 cu. yd. shale bank protection (g) 109,000 m. gals. water for compaction (h) 20,000 cu. yd. stockpiled boulders for Dane Reservoir Proj. on right bank of Missouri River approx. 6 mi. northwest of Pierre, Stanley Co. Spec. No. CIVENG 25-066-52-48. CD 5/15/44.

▲ Texas and Louisiana—PIPE LINE—Bids Asked—Texas Pipe Line Co., c/o Texas Co. Bldg., Houston, Tex., 220 mi. 22 in. welded joint crude oil pipe line between Houma La. and Port Arthur, Tex. $9,600,000; crude oil pipe line gathering sys., Terrebonne Parish for Lake Barre, Lake Pelto, Bay St., Elaine, La. $350,000; 31 mi. 12¾ in crude oil line between Houma and Cocodrie, La. $420,000. CD 11/7.

BIDS ASKED—BUILDINGS

Tex., Austin—DORMITORY—B.A. 12/5—University of Texas, Austin, Proj. 1, brick veneer, stran steel frame, women's housing units or dormitory, concrete slab floor and beam fdn. $340,000. Jessen, Millhouse & Greeven, 2816 N. Guadalupe St., and Mark Lemmon, 1210½ Main St., Dallas, archts. CD 9/27/48.

† Tex., Big Spring—FIRE STATION, etc.—B.A. 12/6—U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, one crash and structural fire station, Castle & Castle, F. C. Olds, B. B. Yeatts, J. D. Allen, Leonard Kanto, H. L. Tucker, Wm. N. Collier, Jr., P.O. Box 2175, Abilene, engrs.-archts. CD 4/17.

▲ Neb., Omaha—HOUSING—B.A. 12/10—Omaha Housing Auth. No. 22, 5529 S. 30 St. 300 unit housing, 30 and Burdette Sts. $2,500,000. L. A. Daly Co., Insurance Bld., archt. CD 3/14/51.

† Tex., Texarkana—HEATING PLANT—B.A. 12/11—U. S. Eng., Box 61, Tulsa 2, Okla. heating plant, Inv. No. ENG 34-066-52-17. Approx. $150,000. CD 7/6.

▲† Tex., Texarkana—WAREHOUSES—B.A. 12/11—U. S. Eng., Box 61, Tulsa 2, Okla. (1) 200x1,200 ft. steel, concrete block or hollow tile exterior warehouse. Approx. $500,000; (2) 200x1,200 ft. steel frame, grade beams, concrete block exterior warehouse, pier-type footings. Approx. $500,000, Inv. No. Eng 34-066-52-17. CD 7/6.

Ark., Arkadelphia—HOUSING—B.A. 12/15—Arkadelphia Housing Proj., Arkadelphia, erecting 77 housing units; 51 for whites and 26 for negroes $725,000.

▲† N. M., Los Alamos—PHYSICS—B.A. 1/3—U. S. Atomic Energy Comn., Los Alamos, physics bldg. $2,500,000-$3,000,000. Plans deposit $50.

▲ Tex., San Antonio—POWER PLANT, etc.—B.A. 1/10—State of Texas, c/o Bd. for Hospitals & Special Schools, 45 and Lamar Sts., Austin, power plant, $150,000; 400-patient tuberculosis hospital $1,500,000, both for San Antonio State Hospital. Plans deposit $50. Extended date. Atlee B. & Robert M. Ayres, Transit Tower Bldg., archts. CD 10/29.

Kan., Kansas City—PLANT—Bids Asked—Midwest Cold Storage Co., Fifth St. and Kaw River, 3 story, 30,000 sq. ft. plant on 15 ft. concrete stilts. $400,000.

▲ Tex., Houston—PLANT—Bids Asked—Peter Pan Baking Co., 12 and Jackson Sts., bakery plant, Griggs Rd. $2,750,000.

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Texas—Gulf, Colorado & Santa Fe Ry. Co., W. T. Donoho, ch. engr., Rosenberg and Strand Sts., Galveston, soon lets contract, steel bridge in area of Lavon Dam, Wylie and Lavon. Approx. $750,000. Plans deposit $40.

SOON LETS CONTRACT—BUILDINGS

Tex., Dallas—PLANT—Mrs. Baird's Bakeries, Inc., 1401 N. Carroll St., soon lets contract bakery plant, $550,000. George L. Dahl, 2101 N. St. Paul St., engr.-archt. CD 11/20.

Tex., Houston—FREIGHT TERMINAL—Central Freight Lines, Inc., 1200 Walnut St., soon lets contract masonry, concrete type freight terminal, incl. 80x250 ft. dock. $400,000. CD 10/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Railway & Industrial Engineering Co., Greensburg, Pa. CA $459,229 31 sub-stations, M'SSOURI, Northwest Electric Power Co-operative, Cameron, Mo. Bids Nov. 14. CD 11/7.

▲† Pittsburgh-Des Moines Steel Co., 1015 Tuttle St., Des Moines, Ia., CA $8,385,433, penstocks and surge tanks at Fort Randall Dam and reservoir Proj.,

Inv. 52-28, near Lake Andes, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 15. CD 9/17.

Lippert Bros. General Contractors, 2800 N. Santa Fe St., Oklahoma City, Okla. LB $616,892, general contract sewage plant, PITTSBURG, KAN. City, Pittsburg, Kan. Bids Nov. 6. CD 10/30.

▲ **U. S. Govt. Contg. Officers**, Kelly Air Force Base, San Antonio, Tex., rejected bids Aug. 6, high h.p. conventional reciprocative engine test stands, facilities, Inv. No. IFB 41-608-52-753, LB $1,811,112; cancelled bids to have been opened Aug. 6, gasoline storage and dispensing sys. engine test bldgs., Inv. No. IFB 41-608-52-754, both at KELLY AIR FORCE BASE, TEX. CD 8/14, under LB and 7/24.

Crosley & Hardy, Carlsbad, N. M., CA. Approx. $425,000. 25 mi. 10 in. crude oil line, Denton Pool in Lea Co., N. M. to Wassom Station in Yoakum Co., Tex. NEW MEXICO and TEXAS. Service Pipe Line Co., Carlsbad, N. M. CD 11/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Kraus-Anderson, Inc.**, 501 S. 8 St., Minneapolis, Minn. CA $2,000,000. general contract SHOPPING CENTER, ROCHESTER, MINN. Chester Park Center, c/o Sheldon-Thomas Co., 316 National Bldg., Minneapolis, Minn. M. O. Nathan, 343 S. Dearborn St., Chicago 4, Ill., archt.

Gamble Constr. Co., 804 Pine St., St. Louis 1, Mo. LB $300,000. 2 story, bsmnt., 83x89 ft., brick, rein.-con., dial TELEPHONE EXCHANGE BLDG., Chambers Rd. at Dale Dr., BADEN (St. A., ST. LOUIS), MO. Southwestern Bell Telephone Co., 1010 Pine St., St. Louis 1, Mo. C. E. Overbeck, c/o owner, archt. CD 7/18, under Mo., St. Louis Co.

Bennett Constr. Co., 3252 Roanoke Rd., Kansas City 6, Mo. CA $411,660. general plumbing, heating and electrical work, SCHOOL, RAYTOWN, MO. Bd. Educ., Raytown, Mo. Bids Nov. 7.

Woermann Constr. Co., 3800 W. Pine Blvd., St. Louis 8, Mo. CA $300,000. 3 story, bsmnt., 133x142 ft., brick, rein.-con. TELEPHONE EXCHANGE, 2651 Olive St., ST. LOUIS, MO. Southwestern Bell Telephone Co., 1010 Pine St., St. Louis 1, Mo. C. E. Overbeck, c/o owner, archt.

O. D. Milligan Constr. Co., 806 N. 3 St., Manhattan, Kan. CA $985,000. General contract Riley County HOSPITAL, Sunset, Platt and Claflin Sts.

Woodhull Plumbing Co., 808 N. 3 St., Manhattan, Kan. CA $391,082. Plumbing and heating contract for above hospital, MANHATTAN, KAN. Bd. Hospital Trustees, c/o E. I. Washington, chn., Manhattan, Kan. CD 11/13, under LB.

Industrial Constr. Co., 1627 W. Main St., Oklahoma City 4, Okla., CA, $544,948, est. $500,000. BANK, LAWTON, OKLA. Security Bank & Trust Co., Lawton, Okla., Bids Nov. 13. CD 11/8.

Secor Building Co., Plaza Court, Oklahoma City 3, Okla. CA $559,990, est. $500,000. Crippled Childrens HOSPITAL addn., OKLAHOMA CITY, OKLA. Bd. Regents, Capitol, Oklahoma City 5, Okla. Bids Nov. 8, awarded Nov. 14. CD 11/1.

▲† **Del E. Webb Constr. Co.**, S. 23 Ave., Phoenix, Ariz. LB $1,867,416, est. $1,760,637, construction and modification 8 BUILDINGS, Inv. No. 292-52-5, near AMARILLO, TEX. U. S. Atomic Energy Comm., P. O. Box 5400, Albuquerque, N. M. Bids Nov. 16. CD 10/15.

R. F. Jordan, 2305 Isabel St., Houston, Tex., Purchase and Hire, $325,000. 40 DWELLINGS, ANGLETON, TEX. CD 11/9.

Whipple Constr. Co., 4015 Fernwood St., Houston, Tex., Owner Builds. $360,000. 45 DWELLINGS, ANGLETON, TEX. CD 11/9.

Harry Twombly, Freeport, Tex., Owner Builds. Approx. $475,000. 70 rental HOUSING units, FREEPORT, TEX. CD 9/19.

James B. Dent, 2425 Ralph St., Houston, Tex., CA, $400,000. FREIGHT PLANT or TERMINAL, HOUSTON, TEX. Central Freight Lines, Inc., 1200 Walnut St., Houston, Tex. W. E. Lessing, Box 238, Waco, Tex., engr. CD 12/1/50.

C & B Constr. Co., 6319 Long Dr., Houston, Tex. Owner Builds. Approx. $375,000. 38 frame, masonry DWELLINGS, concrete slab fdn., HOUSTON, TEX. CD 11/1.

The Fairworth Co., c/o Malcolm McCulloch, 1932 North Blvd., Houston, Tex., Owner Builds. $360,000. Proj. 2, 40 DWELLINGS, HOUSTON, TEX. CD 4/23.

King & Sheets Co., City Natl. Bank Bldg., Houston, Tex. Owner Builds. Approx. $380,000. 50 DWELLINGS, LAKE JACKSON, TEX. CD 11/9.

▲ **The Austin Co.**, M & M Bldg., Houston, Tex., CA, Approx. $1,750,000. 100,000 sq. ft. DEPARTMENT STORE, LONGVIEW, TEX. Federated Department Stores, Inc., c/o Foley's Inc., 111 Main St., Houston, Tex. CD 11/15.

▲ **The Austin Co.**, M & M Bldg., Houston, Tex., CA, Approx. $1,550,000. 100,000 sq. ft. DEPARTMENT STORE, MIDLAND, TEX. Federated Department Stores, Inc., c/o Foley's, Inc., 111 Main St., Houston, Tex. CD 11/15.

Gilbert Falbo Co., 107 Morales St., San Antonio, Tex. CA. $876,899, HIGH SCHOOL, SAN ANTONIO, TEX. Harlandale Independent School Dist., W. Huff St., San Antonio, Tex. Bids Nov. 14, awarded Nov. 16. CD 10/22.

Glendale Homes, Inc., San Marcos, Tex., Owner Builds. Approx. $475,000. 61 HOUSING units, SAN MARCOS, TEX. CD 11/13.

USF "Handy Hut" PORTABLE
STEEL BUILDING

Fast, simple erection and dismantling plus an ideal size range make this the handiest portable steel building manufactured—for field offices, storage, and many other purposes. All steel precision fabricated . . . just bolt the framing, and attach side wall sheets and roofing by special clip and wedge fasteners. Approximately 10' x 12' of floor space in the basic size; additional lengths, in multiples of two feet, provide a size range up to 10' x 20'. Clear headroom of 7½'. All sections are light enough for easy manual handling.

MANUFACTURERS OF

• Hollow Metal Doors and Frames • Prefabricated Metal Buildings • Corrugated Metal Window Wells • Highway Guard Rail • Corrugated Metal Pipe • Structural Plate Bridge Flooring

USS STEEL

USF UNITED STEEL FABRICATORS, INC.

WOOSTER, OHIO

▲ **Pan-American Refining Co.**, Texas City, Tex. Own Forces. $1,250,000. expansion of Panarez unit at CHEMICAL PLANT, TEXAS CITY, TEX. Work underway. CD 5/17.

▲ **Texas Gulf Constr. Co., Inc.**, 2008 S. Wayside St., Houston, Tex., CA. Approx. $1,000,000. LABORATORY and OFFICE, TEXAS CITY, TEX. Pan-American Refining Co., Texas City, Tex. Bids Oct. 15. CD 10/2.

† **Claremont Constr. Co.**, Box 87, Claremont, Calif., CA. $721,306, 50 unit HOUSING, Group 15, Inv. No. 291-52-15, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids Oct. 17, awarded Nov. 15. CD 10/3.

Robert E. McKee, General Contractor, Inc., Box 1706, Santa Fe, N. M., CA. $629,200. CAPITOL Bldg. and Annex No. 1, remodeling, SANTA FE, N. M. State of New Mexico, Santa Fe, N. M. CD 11/1, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 13 California

STREETS AND ROADS

December 13 California

Wash., Seattle—TRANSMISSION LINE—B.A. 12/5—City, County—City Bldg., Zone 4, 230-kv double circuit steel tower transmission line on Skagit Proj. E. R. Hoffman, city light supt.

† **Calif., Sacramento**—PARKING APRONS—B.A. 12/6—U. S. Eng., Wright Bldg., addnl. parking aprons at Mather Air Force Base, Spec. 1607. CD 4/5.

† **Idaho, Mountain Home**—STORAGE, etc.—B.A. 12/11—U. S. Eng., City-County Airport, Walla Walla, Wash., aviation gasoline and auto gasoline storage and fueling systems addns., Mountain Home Air Force Base, Mountain Home, Idaho. Serial No. ENG 45-164-52-8. CD 11/5.

† **Wash., Pasco**—B.A. 12/12—U. S. Eng., Building 602 City-County Airport, Walla Walla, altering heating, ventilating and electrical systems Building T-131, Pasco Engineering Depot. Serial No. ENG 45-165-52-9. Plans deposit $25.

† **California**—TRANSMISSION LINE—B.A. 12/13—Bureau Reclamation, 2440 J St., Sacramento, Folsom-Elverta 230 kilovolt transmission line, Sacramento.

† **Washington**—EQUIPMENT ASSEMBLY—B.A. 12/13—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f. o. b. cars shipping point or f. o. b. cars Othello, equipment assembly for Lower Scootenay (PE27) Pumping Plant, Columbia Basin Proj. Spec. DS 3591. L. N. McClellan, ch. engr.

▲ **Ore., Portland**—PIER, etc.—B.A. 12/20—The Port of Portland, 916 Portland Trust Bldg., 319 S. W. Washington St., Zone 4, (1) cellular sheet pile bulkhead incl. removal of old structures (2) driving submerged protective wing (3) construct 1,087 ft. long, concrete-deck, finger pier supported on long pipe lines (4), access pier (5) mooring dolphins and fender sys. (6) c. bldgs. on shore (7) altering and relocating certain existing equip., incl. 2 floating dry docks, for new pier and facilities at Swan Island. Approx. $1,000,000. Plans deposit $25. Frederic R. Harris, Inc., Swan Island, Portland, Zone 18, consult. engr. CD 8/8/45.

BIDS ASKED—BUILDINGS

Ore., Ashland—DORMITORY—B.A. 12/10—State Bd. Higher Educ., University of Oregon, Eugene, 3 story, 40x80 ft. rein.-con. dormitory addn. Plans deposit $10. C. Howard Kable, Sherlock Bldg., Portland, archt.

Wash., Bellingham—SCHOOL—B.A. 12/10—School Dist. 501, Bellingham, 85x218 ft., and 85x180 ft., masonry Carl Cozier Elementary School. Approx. $200,000. Plans deposit $25. G. A. Bentley, 213 Luther Bldg., archt. CD 10/9, under LB.

† **Calif., Sacramento**—GASOLINE SERVICE STATIONS—B.A. 12/12—Dpt. Army, National Guard Bureau, Box 1139, motor vehicle gasoline service stations in various counties for national guard.

Calif., Sacramento—SCHOOL—B.A. 12/12—Sacramento City Unified School Dist., 1619 N. St., Joseph Bonheim School, Marin and Jessie Aves. Plans deposit $25. Herbert Goodpastor, 1612 J St., archt. CD 11/9.

Ore., Portland—SCHOOL—B.A. 12/12—School Dist. 1, 631 N. E. Clackamas St., Portland, Robert Gray Grade School. Plans deposit $50. Freeman, Hayslip & Tuft, 2040 S. W. 3rd St., archts. CD 6/1/44.

† **Wash., Richland**—FIRE STATION—B.A. 12/12—U. S. Atomic Energy Comn., Richland, 9400 sq. ft. rein.-con. fire station.

Calif., San Bernardino—SCHOOL—B.A. 12/13—San Bernardino City School Dist., 799 "F" St., Western Junior High School, $300,000. Plans deposit $25. Wm. F. Mellin, 671 "D" St., archt. CD 3/28.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WASHINGTON**—State Hy. Dpt., Olympia, MacRae Bros., 84 Bell St., Seattle 1, Wash., CA $1,063,559, third unit of Alaskan Way viaduct, Seattle, King Co. Bids Nov. 15. CD 10/22.

† **Bonneville Power Admin.**, 287 N. E. Oregon St., Portland, Ore., rejected bids Oct. 19, clearing Maywood-Columbia Section, Columbia-Olympia, 287 kv line, King Kittitas, Chelan and Douglas Counties, WASHINGTON. CD 11/2, under LB.

Arcorace & Co., 7722 Rainier Ave., Seattle, Wash., LB $708,910, Contr. 2 of L.I.D. No. 1.

Hoagland-Fondley Co., 607 3 Ave. W., Seattle, Wash., LB $197,563, 11,800 ft. 8- to 12-in. laterals along lake shore on east side of Sand Point ridge, SEATTLE, WASH. Lake City Sewer Dist., 3622 E. 105 St., Seattle, Wash. Bids Nov. 14.

C. **A. Power**, E 915 Marietta St., Spokane, Wash., CA $166,491, est. $166,665, Div. BC-1 of intercepting sewers in $3,750,000, sewer project, SPOKANE, WASH. City, City Hall, Spokane, Wash. Bids Nov. 15. CD 10/18.

† **Berger Engineering Co.**, 3236 16th S. W., Seattle, Wash. LB $186,000, penstock gate and guides, gate hoists, Lookout Point Dam, Civeng 35-026-52-77, Lane Co., OREGON.

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,

Vernie Jarl, 438 Roberts St., Gresham, Ore., CA $493,-131 relocate 1.278 mi. forest development road, Grant and Umatilla Counties. Bids Nov. 6.

OREGON—State Hy. Comn., Highway Bldg., Salem,

C. R. O'Neil, Creswell, Ore., CA, $728,595, grading 9.38 mi., paving 9.65 mi. Ochoco Hy. FAP-BF-175 (9), Wheeler Co.

M. C. Lininger & Sons, Medford, Ore., CA, $67,348, surf., oiling 5.85 mi. Gerking and Innes county roads, FAP S-114 (1), Deschutes Co.;

J. N. Conley, 8919 S. E. Foster Rd. Portland, Ore., CA, $179,643, grading, surf., oiling 5.62 mi., 2 concrete bridges, Pittsburg-Scaboose county road, FAP-S-77 (3), Columbia Co. Grand total $975,586. Bids Nov. 8.

† **Schutt Constr. Co., Inc.**, Genoa, Wis., CA, $619,496 reservoir clearing on Pine Flat Dam, near Piedra, Spec. 1567, CALIFORNIA. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Oct. 30, awarded Nov. 13. CD 10/8.

▲ **M. F. Kemper**, 3701 Overland Ave., Los Angeles, Calif., CA, $1,380,702, Eagle Rock Reservoir construction, LOS ANGELES, CALIF. Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids Nov. 6. CD 11/8, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Elle Constr. Co.**, 390 Yellowstone Ave., Pocatello, Idaho, LB $1,540,754, general contract HIGH SCHOOL GYMNASIUM and SHOP, TWIN FALLS, IDAHO. School Dist. 411, Twin Falls, Idaho. Bids Nov. 15. CD 11/5.

▲ **E. A. Hathaway & Co., Inc.**, 1098 Fifth Ave., San Jose, Calif., LB, $1,196,114, Manor SCHOOL, on Kavanaugh Property, EAST PALO ALTO, CALIF. Ravenswood Elementary School Dist.; 523 Donahoe St., East Palo Alto, Calif. Bids Nov. 9. CD 10/29.

J. H. Baum & Son, 5652 Venice Blvd., Los Angeles, Calif., LB, $223,167, 2 story BAKERY, LOS ANGELES, CALIF. Barbara Ann Baking Co., 2545 Pasadena Ave., Los Angeles, Calif. Bids Nov. 9, CD 9/21.

Bechtel Corp., 220 Montgomery St., San Francisco, Calif., CA $425,000, coffee processing PLANT and WAREHOUSE, Folsom and 13 first Spear Sts., SAN FRANCISCO, CALIF. HILLS Bros. Coffee, Inc., 2 Harrison St., San Francisco, Calif. Thor Gulbrand, 3780 Wilshire Blvd., Los Angeles, Calif., archt. Awarded Nov. 14.

▲ **McNeil Constr. Co.**, 5860 Avalon Blvd., Los Angeles, Calif., LB, $3,000,000 incl. equipment, Chewing Gum FACTORY, Main St. and West Cliff Dr., SANTA CRUZ, CALIF. Wm. Wrigley Jr. Co., 410 N. Michigan Ave., Chicago, Ill. Bids Sept. 18. CD 9/11.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

Alaska, Haines—B.A. 12/12—Alaska P. Wks. Dpt. Interior, Juneau, water supply and distr. sys. and sewerage sys. imprvs. Aaa 50-A-115. $145,100. Plans deposit $25. F. J. Toner, Juneau, engr. CD 5/15/50.

† **ALASKA**—B.A. 12/14—Bureau P. Rds., Dept. Interior, Juneau Alaska

grading, surf. 5 mi. [illegible] and Douglas Hys., Proj. 2-D5, F7 and 31-A8, B3, H. A. Stoddart, div. engr. CD 8/17/45.

† **Alaska**—TRANSFORMERS—B.A. 12/27—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Palmer, two 20,000-kva, 6,600 delta - to - 115,000 grounded wye-volt, 3-phase, 60-cycle, oil-immersed, forced-oil-cooled, outdoor power transformers, incl. insulating oil, each with air-cooled external heat exchangers for the Eklutna Power Plant Switchyard, Eklutna Proj. Inv. No. DS-3590.

BIDS ASKED—BUILDINGS

† **Alaska, Anchorage**—STORAGE—B.A. 12/7—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, national guard vehicle storage bldg. Inv S95-514-NG-52-1. Plans deposit $10.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., St. Jovite—B.A. 12/5—H. Gauthier, Town Hall, St. Jovite, sewerage system. Plans deposit $25. Papineau & Frigou, 212 S. Sacrament St., Montreal, Que., engrs.

BIDS ASKED—BUILDINGS

B. C., Vancouver—HOUSES—B.A. 12/4—J. L. Adams, engr. Central Mortgage & Housing Corp., 360 Homer St., 100 houses, Proj. 6-Z-1, and Proj. 6-Z-2, (Fraser View Development). $930,000. Plans deposit $50. CD 8/18/49.

Que., La Salle (Postal Dist Montreal)—GARAGE—B.A. 12/4—M. P. Mcandrews, 1247 Guy St., Montreal, garage, for Govt. of Canada Dpt. National Defence NAVY, Cartier Sq., Ottawa, Ont. Plans deposit $50.

Ont., Sault Ste. Marie—SCHOOL—B.A. 12/17—J. P. Parkin Assocs., archts., 622 Queen St., technical and commercial high school addn., for Bd. Educ., Sault Ste. Marie, Ont. Approx. $495,000. Plans deposit $25.

▲ **Ont., Sarnia**—HOSPITAL—Bids Asked—General Hospital Comn., Sarnia, 5 story, 48x225 ft., steel, brick hospital, and 2 story, 90x101 ft. structure $2,400,000. Govan, Ferguson, Lindsay, Kaminker, Maw, Langley & Kennleyside, 515 Jarvis St., Toronto, Ont., archts. CD 11/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

S. McNally & Sons Ltd., 220 King St. E., Hamilton, Ont., CA, $490,123, sewers Dunn Ave., Glow Ave., Glow and Woodward Aves., HAMILTON, ONT. City, J. F. Berry, city clk., City Hall, Hamilton Ont. Bids Nov. 8. CD 10/19.

McKay-Cocker Constr. Ltd., 233 Dundas St., London, Ont. CA $630,897, BARRACK BLOCK at R. C. A. F. Station, LONDON, ONT. Defence Constr. Ltd.; 411 Queen's Quay W. Toronto 2B, Ont. R. P. Opie, c/o owner, engr.

W. C. Brennan Contg. Co., 400 Gage Ave. N., Hamilton, Ont., CA. Approx. $200,000, earth moving project at plant, OAKVILLE, ONT. Ford Motor Co. of Canada Ltd., Windsor, Ont. CD 11/8, under Industrial Buildings.

Municipality, Quebec City, Que., Own Forces, $100,000, street paving repairs, QUEBEC CITY, QUE. Ed. Hamel, City Hall, city engr. CD 1/8/48.

Newton Constr. Co. Ltd., 150 Victoria St., Sherbrooke, Que., CA $775,634, BARRACK BLOCK and MESS at R. C. A. F. Station, SHERBROOKE, QUE. De ence Constr. Co. Ltd., 1247 Guy St., Montreal, Que. R. P. McAndrew, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

R. Vollan, 5509 111 Ave., Jasper Place, Alta., CA, $400,000, 2 story U-shaped, 178x138 ft. frame, stucco, concrete HOTEL, JASPER PLACE, ALTA. H. G. Curlett, Jasper Place, Alta. Ralph Brownlee, 11535 St. Albert Trail, Edmonton, Alta., archt.

▲ **Dominion Constr. Co. Ltd.**, 150 W. 1 Ave., Vancouver, B. C. CA, $2,000,000, incl. equipment, Celanese PLANT extens., filtration plant addn., digester extens. and recovery bldg. all rein.-con. Port Edward near PRINCE RUPERT, B. C. Columbia Cellulose Co. Ltd., 510 W. Hastings St. Vancouver, B. C. Awarded Nov. 15. CD 4/28/47.

Marwell Constr. Co. Ltd., 410 Seymour St., Vancouver, B. C. CA Approx. $815,233, RCEME WORKSHOP at Army Depot, VANCOUVER, B. C. Defence Constr. Ltd., 360 Homer St., Vancouver, B. C. J. L. Adams, c/o owner, engr.

▲ **Claydon Co. Ltd.**, 290 Garry St., Winnipeg, Man., CA Approx. $1,750,000, 186 HOUSING units at Fort Osborne Barracks, WINNIPEG, MAN. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Oct. 10. CD 9/28.

John Flood & Sons, Ltd., 111 Princess St., St. John, N. B. Approx. $300,000, 5 story, T-shaped, 44x176 ft. main wing, and 44x76 ft. wing, rein.-con. Charlotte County HOSPITAL, ST. STEPHENS, N. B. Bd. Trustees Charlotte County Hospital, St. Stephen, N. B. Bids Oct. 22. CD 10/11.

W. H. Cooper Constr. Co. Ltd., Hunter and Hughson Sts., Hamilton Ont., CA, Approx. $120,000 PLANT EXTEN. on Rifle Range Rd., HAMILTON, ONT. Donald Ropes & Wire Cloth Ltd., 180 King William St., Hamilton, Ont. Prack & Prack, 310 Main St. E., Hamilton, Ont., archts. CD 4/24/47.

Foundation Co. of Canada Ltd., 428 Richmond St., London, Ont., CA, Approx. $225,000, 4 story bsmnt., rein.-con., brick PLANT EXTEN., LONDON, ONT. Jones Box & Label Co. Ltd., Dundas St. E., London, Ont. S. G. Chipman, 233 Dundas St., London, Ont., engr.

Ingham & Smith Constr. Ltd., 2103 Valley Way, Niagara Falls, Ont., CA $475,000, 1 and 2 story, 63x135 ft. brick, steel, rein-con. Princess Elizabeth Intermediate Grade School, Drummond Rd., STAMFORD CENTRE, ONT. Bd. Educ., Stamford, Ont. A. B. Scott, 65 Empire St., Welland, Ont., archt.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Egypt—Bids Asked—Hydro-Electric Power Dpt., Ministry of P. Wks., Cairo, Egypt, supply, erection and maintenance of sluice gates, weed screens, flumes, downstream gates and cranes for handling gates required for the Hydro-Electric Power Station at Aswan Dam. Plans deposit LE 20 ($57.50 American Dollars) Kennedy & Donkin, 12 Caxton St., London, S.W.1., consult engrs. CD 7/30 under LB.

(Proposal Advertisements see pp. 79 to 81)

OFFICIAL PROPOSALS

Bids: December 18, 1951

Installing Concrete Water Main

Sealed bids will be received by the Louisville Water Company at its office at 435 South Third Street, Louisville, Kentucky, up to 11:00 A.M. Central Standard Time, Dec. 18, 1951, on the installation of 18,800 feet of 30" reinforced concrete water main along Bardstown Road and Shepherdsville Road in Jefferson County, Kentucky. All pipe fittings and valves have been purchased and will be furnished by others.

The plans and specifications are on file and may be examined at the office of the Louisville Water Company.

Plans and specifications may be obtained by depositing Fifteen Dollars ($15.00) with the Louisville Water Company. The deposit will be refunded to bidders who submit a bona fide bid and return the plans and specifications in good condition at the time bids are taken. Additional copies of the plans and specifications for use of subcontractors may be purchased for the same price, with no refund.

Each bidder shall deposit with this proposal a certified check or a bidder's bond in favor of the Louisville Water Company in the amount of five per cent (5%) of his bid, which shall be forfeited in case the contractor fails to enter into a contract with good and sufficient bond within ten (10) days after notice of award on the contract.

No proposal may be withdrawn after the time for opening bids is past.

The right is reserved to reject any or all bids or waive any informality in any bid, and accept any considered advantage to the Louisville Water Company.

LOUISVILLE WATER COMPANY,
By: B. E. Payne
Chief Engineer and Superintendent

Bids: December 20, 1951

Intercepting and Outfall Sewers and Sewage Treatment Plant

Danville Municipal Authority, Borough of Danville
Montour County Pennsylvania

Sealed proposals will be received at the office of J. M. Robbins, Solicitor for the Danville Municipal Authority, at 104 Mill Street, Danville, Pennsylvania, until 1:30 P.M., E.S.T., Thursday, December 20, 1951, for furnishing all necessary labor, materials and equipment, and performing all work for the construction of INTERCEPTING AND OUTFALL SEWERS AND A SEWAGE TREATMENT PLANT. Bids will be publicly opened and read at 2:00 P.M., E.S.T., Thursday, December 20, 1951, in the Council Chambers of the Borough of Danville, Borough Hall Building, Mill Street, Danville, Pennsylvania. Separate proposals will be received upon five (5) parts of the project as follows:

Contract One—CONSTRUCTION OF INTERCEPTING AND OUTFALL SEWERS.
Contract Two—GENERAL CONSTRUCTION OF A SEWAGE TREATMENT PLANT.
Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT.
Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT.
Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT.

Each proposal shall be accompanied by a certified check in amount not less than five (5) per cent of the bid total, or a bid bond in amount not less than seven and one-half (7½) per cent of the bid total, all in accordance with provisions contained in the Specifications.

Copies of the Contract Documents, including Plans and Specifications will be available for inspection at the office of Gannett Fleming Corddry & Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, and at the office of J. M. Robbins, 104 Mill Street, Danville, Pennsylvania; or they may be obtained from the first of the above stated places upon deposit of the following amounts for each set:

Contract One—SEWERS	—$10.00
Contract Two—GENERAL CONSTRUCTION	—$20.00
Contract Three—PLUMBING WORK	—$10.00
Contract Four—HEATING WORK	—$10.00
Contract Five—ELECTRICAL WORK	—$10.00

Full refund will be made to actual bidders for return of one of each set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same period, will be fifty (50) per cent of the deposit.

N.P.A. controlled materials rating DO-T-8 issued for this Project.

Danville Municipal Authority
Borough of Danville,
Pennsylvania
Gannett Fleming Corddry &
Carpenter, Inc., Engrs.
600 North Second Street
Harrisburg, Pennsylvania

Bids: December 14, 1951

Philadelphia International Airport

PHILADELPHIA, PENNA.
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING, SURVEYS AND ZONING

Sealed Proposals will be received at Room 903 City Hall Annex, until 12:00 o'clock noon, Friday, December 14, 1951, and opened at that time in Room 903 City Hall Annex, Philadelphia, for

Schedule "A"—Installation of Underground Conduit System for Power and Communication Distribution
Contract No. A 184 SW
The work consists of an underground conduit system for power and communications distribution at the Philadelphia International Airport. The work includes 170,000 linear feet of single bore conduit arranged in ducts of various sizes

Schedule "B"—High Voltage Distribution System
Contract No. A 199 SW
The work includes a high voltage distribution system, an outdoor substation, and 80,000 linear feet of cable.

Attention is called to an allocation of materials for these contracts by the National Production Administration, as set forth in the specifications for the work.

Proposal forms and specifications may be obtained in Room 101 City Hall Annex. Blue prints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Co., 51 North 13th Street, Philadelphia 7, Penna.

No bids will be received unless bidder is qualified by the Director of Public Works. The questionnaire with questions fully answered must be filed with the Director of Public Works at least one week prior to the date of opening bids.

Each bid must be accompanied by security in form and amount as set forth in proposal form.

THOMAS BUCKLEY, Director

Bids: December 28, 1951

Construction of the Tancarbille Bridge on the Seine River

CHAMBER OF COMMERCE OF HAVRE, FRANCE

A tender is to be held for the construction in a single lot of the Tancarbille bridge on the Seine River at approximately 25 kilometers upstream of the Havre. The project in question comprises the following work:

—construction of a suspended span of 600 meters approximately over the Seine River;
—construction of access viaducts having an approximate length of 70 meters on the right bank, and an approximate length of 660 meters on the left bank;
—earth-moving work and highway construction.

A brief notice setting forth the purpose of the tender will be sent upon request to those wishing to take part in this tender.

MAIN CONDITIONS FOR THE TENDER

I—Applications for admission—

Those desirous of taking part in this tender should submit an application by registered mail addressed to: "Monsieur le Président de la Chambre de Commerce", Havre, (Seine Inférieure), France, and enclose with such application the documents listed in the Annex to Article 8 bid of the Standard Specifications and Conditions imposed on contractors for Highway and Bridge Construction Work.

II—Acceptance of Applications—

The list of the firms authorized to take part in the final tender will be drawn up by the Minister of Public Work, Transportation and Traveling, on the recommendation of the Chamber of Commerce of Havre, after due examination by a local Commission.

Those firms authorized to take part in the tender will be notified subsequently and directly by registered mail of their being admitted and will receive at that time the detailed itemized program of the works (for the estimate) covering the said tender.

The documents submitted by firms not admitted to take part in the tender will be returned to them with the advice that their application has not been accepted.

III.—Deadline for the Applications

The applications, with the attached documents, shall reach the President of the Chamber of Commerce of Havre before December 28, 1951, 4 P.M., this deadline being final. Any application arriving after the expiration of this deadline will not be accepted.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Invitation No. 7038-224 for furnishing and delivering power circuit breakers and disconnecting switches for Gering and Sidney substations additions, Transmission Division, Nebraska, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10 a.m., Mountain Standard Time, December 13, 1951, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the invitations may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations furnished for bidding purposes; for all others $0.25 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN THAT sealed bids on Invitation No. 7038-218 for furnishing and delivering structural steel for Ogallala Substation, Transmission Division, Nebraska, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10 a.m., Mountain Standard Time, December 4, 1951, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the invitations may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations and drawings furnished for bidding purposes; for all others $0.50 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3597) will be received by Bureau of Reclamation, Denver, Colorado, until 2 p.m., January 3, 1952, and then publicly opened for furnishing four 110- to 69-kv, 3-phase autotransformers, from 7,500 to 15,000 kva, and each with 12.47-kv tertiary winding for Huron, Mount Vernon, Sioux Falls, and Watertown substations, Missouri River Basin South Dakota. Delivery is desired within 470 to 675 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

(Continued on page 80)

CONTRACTORS WATCH THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: December 4, 1951

New York Roadway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, Tuesday, December 4, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 333 Broadway, Albany, N. Y.				
Albany	R.C.51-68	Br. No. 1, S. H. 5614 5639		Painting 4 Bridges	$1,300	$24,000
Greene		Br. No. 1, S. H. 5716			Plans $10	
Rensselaer		Br. No. 1, S. H. 200-721				
Saratoga		Br. No. 1, S. H. 720				
Washington						
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., 301 E. Water St., Syracuse, N. Y.				
Cortland	FARC51-81	Broome County Line-Marathon, 12 61 S. H. 5595 Marathon-Cortland, Pts. 1, 2, 3 & 4, S. H. 8021A, 8021B, 1500 Proj. FI 48(4)		Asp. Conc. Ty. 1A, Opt. Widen Exist. 30' I-Beam	$33,000 Plans $25	$604,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Monroe	LOSP51-3	Lake Ontario State Parkway, Sec. "C"	3 07	Gravel Found. Course = 3 06 Mi. Misc. Work. = 0 01	$49,000 Plans $25	$891,000
		DISTRICT No. 7				
		R. F. Hall, Dist. Engr., 444 VanDuzee St., Watertown, N. Y.				
St. Lawrence	FASS51-22	Stockholm (Water-Lawrenceville, Pt. 2, Co. Rd.) Proj. No. S 263(2)	2 09	Bit. Mac. Ty. I, (Pen. Method)	$8,000 Plans $10	$134,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	R.C.51-85	Various Highways in Dist. No. 8		Removal of 172 Trees	$600 Plans $10	$11,000
Putnam						
Orange	R.C.51-84	West Point-Central Valley, S. H. 5728A Cornwall-West Point, Pts. 1 & 2, S. H. 5498	3 82	Cable Guide Railing, Opt.	$1,100 Plans $10	$21,000
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Delaware & Sullivan	R.C.51-83	East Branch-Sullivan County Line, I 11 Pts. 1 & 2 S. H. 5583, 5340 Liberty County Line, Pt. 2, S. H. 5234		Stream Channel Clearing and Bank Protection	$3,500 Plans $10	$65,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.				
Bronx & Westchester	FA BRP51-3	Bronx River Parkway (So. Ext.) (E. 233rd St. City Line) (Access Proj. No. U 979(14)	0 63 0 61)	8" Cem. Conc. Pavt. 2 at 34' Wide = 0 55 Mi. Asp. Conc. Ty. 1A, Opt. = 0 04 Mi. Misc. Work = 0 04Mi. (Cem. Conc. Pavt. on Access Rd. = 0 61 Mi.)	$54,000 Plans $25	$917,000
Nassau	R.C.51-73	Hempstead-Farmingdale, Pt. 3, S. H. 9055	3 77	Traffic Control System	$4,000 Plans $10	$74,000
Nassau & Suffolk	FARC51-80	Syosset-Cold Spring Harbor, & Pt. 2, S. H. 545, 1652 Proj. No. F 381(4)	0 87	Asp. Conc. Ty. 1A, Opt. Widen Exist. 30' Conc. Arch	$7,000 Plans $10	$132,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specifications, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: December 4, 1951

Soil Explorations and Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., eastern standard time, on December 4, 1951 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, NIAGARA SECTION, SUBDIVISION N-6, PORTER AVENUE TO ONTARIO STREET, CITY OF BUFFALO, ERIE COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEY-SM-22.

Maps, plans and specifications may be examined and obtained at the Bureau of Contracts and Accounts on the 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., and also in the office of Charles R. Waters, District Engineer, 65 Court Street, Buffalo 2, New York. The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $27,600.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1380.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: December 18, 1951

Public Grain Elevator

Sealed bids will be received by the Board of Commissioners of the Port of New Orleans at their office, Room 204, No. 2 Canal Street, until 2:00 P.M., December 18, 1951, and then publicly opened for construction of Public Grain Elevator either under two separate contracts for Items A and B or under one contract for Item C.

ITEM A—Foundations, dumper pits, etc.

ITEM B—Structures and appurtenances complete with mechanical, electrical and all other installations.

ITEM C—Complete project.

A deposit of five per cent of the sum bid, by certified check only, certified by an accredited officer of an accredited bank, is required with each bid. A deposit for a bid on Item C will be applicable to separate bids on either or both of the other items, or the bidder may furnish the deposit called for with each separate bid submitted.

A surety bond, by an acceptable surety company, in the amount of 100% of the sum bid is required with notarial contract.

Specifications, plans and bid forms are on file in the Board's office mentioned above. Complete sets will be furnished to prospective bidders on deposit of $50.00 for each set of Item A and $150.00 for each set of Item B or Item C, which deposit(s) will be refunded to depositors who submit bids with plans. In case of depositor not submitting a bid, $25.00 of bidder's deposit for Item A or $100 of bidder's deposit for Item B or Item C, will be refunded upon return of full sets in good condition within thirty days after opening bids.

The right is reserved to accept or reject any or all bids and to waive informalities, and to award contract as the Board may determine to be for its best interests.

E. H. LOCKENBERG,
General Manager

November 15, 22, 1951

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3599) will be received by Bureau of Reclamation, Altus, Oklahoma, until December 18, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, asphaltic membrane lining, and structures, drains A-1 "162", "E", and "F" extension, Altus 21.7 lateral wasteway, Altus Canal, Sta. 842+13 to Sta. 857+00 and Sta. 1001+80 to Sta. 1013+00—W. C. Austin Project, Oklahoma. The work is situated in the vicinity of Altus, Oklahoma. Principal items are approximately: Excavation for canal 129,300 cu. yds.; overhaul 900 mi. cu. yds.; furnishing and handling cement 150 bbls.; beach belt gravel 1,000 cu. yds.; furnishing and applying asphalt for membrane lining 105 tons; and other work. Time allowed for completion will be 150 days. For particulars, address Bureau of Reclamation, Altus, Oklahoma; or Building 53, Denver Federal Centre, Denver, Colorado.

OFFICIAL PROPOSALS

RATE: The rate for official proposal advertising is $1.25 per line (or fraction) per insertion.

COPY RECEIVED: Up to 10:30 P.M. Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: To Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

OFFICIAL PROPOSALS

Bids: December 11, 1951

San Jacinto River Dam

HOUSTON, TEXAS

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, until 3:00 p.m. C.S.T., Tuesday, December 11, 1951, and all bids will be opened and publicly read in the City Council Chamber at 3:15 p.m. on that date, for constructing the

SAN JACINTO RIVER DAM, INTAKE AND 72 INCH REINFORCED CONCRETE CONDUITS

The dam consists of an Ambursen Type reinforced concrete slab-and-buttress spillway 3160 feet long and 47 feet high, with earth embankments at each end. The following approximate quantities are required for the principal items:

- 80,000 c.y. Stripping
- 46,000 c.y. Core trench excavation
- 860,000 c.y. General excavation
- 50,000 c.y. Trenching, and finishing excavation
- 18,000 c.y. Backfill
- 360,000 c.y. Embankments, Impervious
- 755,000 c.y. Embankments, Pervious
- 250,000 c.y. Embankments, Unclassified
- 12,000 c.y. Topsoil
- 73,000 c.y. Reinforced concrete in foundation floors, mats, and paving
- 55,000 c.y. Reinforced concrete in buttresses, piers, deck slabs, abutments and structures
- 40,000 c.y. Gravel fill
- 4,000 c.y. Rockfill
- 2,000 c.y. Oyster shell road surfacing
- 6,500 tons Steel sheet piling
- 7,000 tons Reinforcing steel
- 20,000 sq. ft. premolded joint filler
- 3,600 lbs. copper water seals
- 2 Steel Tainter gates
- 2 Hinged steel flashboards
- 4 Electric gate hoists
- 1 Steel foot bridge
- 1 Intake tower, complete
- 1,150 Lin. Ft. dual 72" reinforced concrete conduit

The City has already purchased and will supply to the Contractor all miscellaneous Steel and metallic items as follows: all reinforcing steel, cut and bent; all steel sheet piling; 2 Tainter gates and 2 steel flashboards, fully fabricated; 4 complete gate hoists with motors; 3 sluice gates and operating mechanisms with fabricated steel racks; all pipe rail, completely fabricated; steel foot bridge, completely fabricated; all miscellaneous and structural steel items required for dam intake tower and conduits completely fabricated.

The City has received a CMP allotment.

The plans, specifications and bidding documents may be secured from the office of the Director of the Utilities Department, City Hall, Houston, or from Ambursen Engineering Corporation, 295 Madison Avenue, New York or M & M Building, Houston, Texas.

Bids must be made on the standard proposal form, in duplicate, and must be accompanied by Cashier's check or Bidder's Bond in an amount equal to 10% of the total maximum bid price.

The City reserves the right to reject any and all bids, or to accept any bid deemed advantageous to it.

A deposit of $50 is required for each set of plans and specifications, which will be refunded in full upon their return in good condition within 15 days after date of bidding.

M. H. Westerman
City Secretary

October 17, 1951

Bids: December 7, 1951

Rocky Gorge Dam and Pumping Plant on Patuxent River Laurel, Maryland

Sealed proposals, addressed to the Washington Suburban Sanitary Commission for constructing the ROCKY GORGE DAM AND PUMPING PLANT on the Patuxent River near Laurel, Maryland, will be received in the office of the Commission, Hamilton Street, Hyattsville, Maryland, until Friday, December 7, 1951, at 11 A.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

The dam will consist of an Ambursen Type reinforced concrete slab-and-buttress dam, about 725 feet long and 130 feet high, with earth embankments at each end.

Alternate bids will also be received on a mass-concrete gravity type dam.

The approximate quantities of the principal items of each of the two types of dam are as follows:

Ambursen Type Dam

- 8,500 c. y. Mass excavation, common
- 2,500 c. y. Trench excavation, common
- 1,000 c. y. Mass excavation, rock
- 2,500 c. y. Trench excavation, rock
- 25,200 c. y. Reinforced concrete in slabs, buttresses, piers, abutments and bridge
- 1,500 c. y. Mass concrete in cut-offs and fills
- 1,100 tons Reinforcing steel
- 5,000 s. f. Line drilling

Gravity Type

- 11,000 c. y. Mass excavation, common
- 500 c. y. Trench excavation, common
- 19,000 c. y. Mass excavation, rock
- 1,500 c. y. Trench excavation, rock
- 35,000 s. f. Line drilling
- 5,400 c. y. Reinforced concrete in piers, walls, hearth and bridge
- 90,000 c. y. Mass concrete in dam and cut-off
- 370 tons Reinforcing steel

Items Common to Both Types of Dam

- 1,500 c. y. Earth embankment
- 2,500 c. y. Backfill
- 1,000 l. f. Drilling and grouting holes 25 ft. deep
- 2,000 l. f. Drilling and grouting holes 50 ft. deep
- 13 tons Structural steel in trash racks
- 7 Tainter gates, 15 ft. x 27 ft.
- 2 Traveling hoists for Tainter gates
- 1 48-inch free discharge valve
- 1 Caterpillar gate, 6 ft. x 6 ft., with hoist
- 3 Sluice gates, 6 ft. x 8 ft., with hoists

Pumping Plant and Pipeline, Common to Both Types of Dam

- 1,000 c. y. Excavation for pipeline, common
- 6,000 c. y. Mass excavation for penstock, rock
- 4,000 c. y. Mass excavation for pumping plant, rock
- 1,200 c. y. Mass excavation for substructure, rock
- 1,000 c. y. Reinforced concrete in superstructure
- 136,000 lbs. 60-inch diameter welded steel pipeline and penstock
- 3 Pumps with 600 hp motors, capacity 12,600 G.P.M. at 165-ft. head
- 3 Hydraulic turbines, 600 hp, complete

The Commission has received a CMP allotment.

The plans and specifications and bidding documents may be secured from the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, or from the Commission's consulting engineers, Ambursen Engineering Corporation, 295 Madison Avenue, New York, or M & M Building, Houston, Texas. A deposit of $100, is required for each set of plans and specifications, which will be refunded in full upon their return in good condition within 15 days after date of bidding.

The right is hereby reserved to reject any or all proposals, and to waive informalities, as the interest of the Commission may require.

No bidder may withdraw his bid within 45 days after the opening thereof.

The successful bidder will be required to be bonded to the Commission to a sum equal to 100% of the amount of his proposal.

Each proposal must be accompanied by a certified check or bidder's bond for 5 per cent of the amount of the proposal.

WASHINGTON SUBURBAN
SANITARY COMMISSION
Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

36" Submerged Outfall Sanitary Sewer, Potomac River, Fairfax County, Virginia

Sealed bids will be received by the Board of Supervisors of Fairfax County, Virginia at the Office of Sanitary Engineer, County of Fairfax, VEPCO Building, Fairfax, Virginia, until 2:00 o'CLOCK, P.M., E.S.T., MONDAY, DECEMBER 17, 1951, for the construction of a reinforced concrete sewage diversion chamber and the installation of 700' of 36" corrugated, paved and coated, asbestos-bonded, metal pipe, 405' of which is to be supported under water on 27 creosoted pile bents. The 36" pipe and couplings are to be furnished by the Owner, without cost to the Contractor, and are now stored at the project site), which has been designated as "Contract No. 2", and promptly thereafter they will be publicly opened and read in the Board of Supervisors Room, County Office Building, Fairfax, Virginia.

Plans, specifications and contract documents may be examined at the Office of Sanitary Engineer, and copies thereof may be obtained from Massey Engineers, Consultants, Ford Building, Fairfax, Virginia, upon payment of a deposit of $15.00 in cash for each set, which sum will be refunded upon the return of such documents in good condition within ten (10) days after the bid date. Bids must be submitted on the forms supplied for this purpose and in strict accordance with the instructions therefor. Each bidder will be required to show evidence of possession of a certificate of registration as a contractor in the Commonwealth of Virginia before his bid will be considered.

Each bid must be accompanied by a bid bond or certified check made payable to the Treasurer of Fairfax County, Virginia in the amount of at least five percentum (5%) of the total amount of the bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

The time for completion of the contract is one hundred and twenty (120) consecutive calendar days and liquidated damages in the amount of $20.00 per day will be assessed in event of delay or default in the completion of the contract.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

James J. Corbalis, Jr.
Sanitary Engineer, County of Fairfax
Fairfax, Virginia

Bids: December 4, 1951

Gravel Filter Well Units

Notice is hereby given that sealed bids will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

Three (3) gravel well units for the new Fourth Mental Hospital at Ancora, Winslow Township, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, West State Street, Trenton 7, New Jersey, On Tuesday, December 4, 1951 at two (2:00) o'clock and will be opened and read immediately thereafter.

Specifications and the form of bid, contract and bond for the proposed work are on file in the office of the Director and may be secured by prospective bidders during office hours. Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% the amount of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than the special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for Surety Bond in the full amount of the contract, of a Company authorized to do business in the State of New Jersey.

DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE AND PROPERTY
Fred V. Ferber, Director

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-225 for furnishing labor and materials and performing all work for repairing overhead ground wires on existing Seminoe-Casper 115-Kilovolt Transmission Line, Kendrick Project, Wyoming, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10 a.m., Mountain Standard Time, December 6, 1951, at the office of the Bureau of Reclamation Recreation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.50 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $14.25 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col. — 3 col.—30 inches to a page. E.N.R.

New Advertisements received by December 3rd will appear in the December 13th issue.

POSITIONS VACANT

ACCOUNTANT — FOR Philadelphia office of contractor. Some construction experience desirable but not essential. Reply giving education, age and experience. P-2541, Engineering News-Record.

ASSISTANT GENERAL Superintendent—Well established Northwestern Ohio General Contractor employing approximately 450 people on industrial, commercial and public work, has a permanent position for a young graduate Engineer or Building Contractor with at least ten years experience and a desire to get ahead in a growing organization. Please send full details of education, experience, salary wanted, age and other pertinent information, care of P-2469, Engineering News-Record.

DESIGNERS AND Checkers — Experienced in Structural Steel and Reinforced Concrete. Long work program on Power Plants, Chemical Plants, Oil Refinery and other Industrial Projects. Large, established engineering firm in Philadelphia, offering excellent employee benefits and premium pay for all over-time work. P-2352, Engineering News-Record.

DESIGNER—NEED man who can handle design of highway bridges and interchanges, and some institutional building design. Must be experienced—if qualified, send complete resume, desired salary and date available. P-2558, Engineering News-Record.

ENGINEER EXPERIENCED in the design and construction of earth dams for established organization, preferably with working knowledge of soil mechanics, concrete control, and hydrology for the preparation and review of plans and specifications, report writing and field investigations and inspections. Some travel and public relations required. Salary open. Location Pennsylvania. Address P-2432, Engineering News-Record.

ESTIMATOR: PERMANENT position with long established general contractor in Elizabeth, N. J. area. Must be experienced in industrial construction quantity takeoff and pricing. Submit full resume, stating experience, education, age, availability and salary expected. P-2419, Engineering News-Record.

FIELD ENGINEER: Permanent position. Nationally known firm of heavy engineering contractors specializing in Sewer Plants, Pumping Stations, Filtration and Sewage Plants, including mechanical installations, has permanent position open for top ranking field engineer. If you have necessary background of experience, reply giving salary desired, references and complete information. P-2521, Engineering News-Record.

FIELD SUPERINTENDENT wanted to assist General Superintendent. Must be qualified in project construction, frame, block and brick. Large project, located in the Norfolk, Va. area, if proven satisfactory can become organization man. Write stating experience etc. in first letter; top pay to the right man. Reply to Lansdale Gardens, Inc., 109 Duke Street, Norfolk, Va.

HEATING AND Refrigeration Engineer wanted. Must be capable of handling mechanical layout, design and supervision of such installation. Locations of offices served are Racine, Wisconsin; Waukegan, Illinois; Lake Forest, Illinois; and Evanston, Illinois. Pay commensurate with ability. The firm is one of the largest plumbing, heating and refrigeration companies in Chicago and Milwaukee, and is expanding its services yearly. Stiles & Horne, Inc., 648 North Western Ave., Lake Forest, Illinois.

HIGHWAY AND Sanitary Engineers—Positions for highway draftsmen and designers, Office Engineers, water and sewerage and draftsmen. Good pay for qualified men in accordance with experience. Opportunities for advancement. Write and furnish full information regarding education, training and experience, age, references and salary requirements. All replies considered strictly confidential. Department of Public Works, Baltimore County, Towson 4, Maryland.

LARGE, OLD and successful engineering and construction firm in eastern U. S. requires General Manager to take charge entire construction department. Steam electric and hydro-electric plants experience desirable. State in first letter full details of education, experience, age, salary range expected, availability. Write P-2492, Engineering News-Record, 330 West 42nd Street, New York 18, New York.

ESTIMATOR and SALES ENGINEER

For Structural Steel Plant 700 Ton per month capacity compensation commensurate with ability and experience. Write fully stating age, education, experience and salary desired.

ACORN IRON WORKS, INC.
9260 Freeland Avenue, Detroit 28, Michigan

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*

WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS VACANT

MATERIALS ENGINEER—C. E. experienced in highway materials, permanent, good salary and opportunity. Give full information. P-2467, Engineering News-Record.

WANTED DRAFTSMAN to prepare placing plans for Concrete Reinforcing Bars and Steel Bar Joists. Apply giving age, experience and salary required. Southern Engineering Company, P. O. Box 1087, Charlotte, North Carolina.

WANTED ENGINEER to inspect & supervise construction of sewers at Levittown, Pa. which is situated between Trenton and Phila. at Tullytown. This man should be thoroughly experienced in sewer construction work, preferably a man who has supervised installation of sewer pipe from 8" through 36" in size. He should be experienced in all the pipe laying problems connected with sewer installations. He should also be familiar with supervision of sewage pumping plants. Phone Manhasset 7-0777, C. A. Monroe, 1900 Northern Blvd., Manhasset, N. Y.

SELLING OPPORTUNITY OFFERED

AGENTS WANTED. A progressive manufacturer of high-efficiency heavy duty industrial floors and flooring materials and protective coatings offers an attractive sales opportunity to established manufacturers agents having a following in the industrial field. Generous commissions and thorough advertising support. Describe your background and experience in letter to RW-2363, Engineering News-Record.

EMPLOYMENT SERVICE

WANTED — EXECUTIVES-Engineers-Designers-Draftsmen also Recent Graduates all lines. Architects, Chemists and Steel Men. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jiea Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

BUILDING CONSTRUCTION Superintendent or General Superintendent 25 years experience. Thoroughly familiar with all types of Building Construction. References. E. Harold Bowen, General Delivery, Camden, Delaware.

CONSTRUCTION SUPERINTENDENT, age 42, 20 years construction experience Bldgs., all types schools, City bldg., water plants, sewer disposal and factories. Have good record as a good organizer of men, understand costs of labor and material. Not afraid of long hours and work. Can give good references. Wish to locate in Southwest U.S.A. PW-2467, Engineering News-Record.

ENGINEER—BUILDING Construction experienced managing large projects. Negotiates contracts, controls, costs. Meet owners and architects diplomatically. PW-2536, Engineering News-Record.

ESTIMATOR-TWENTY Years experience, pricing, buying, handle subcontracts, job management. Familiar C.P.F.F. Contracts. Available January. PW-2533, Engineering News-Record.

POSITIONS WANTED

GRADUATE ENGINEER, experienced in plant layout & design incl. concrete, timber, steel, piping, machinery; familiar with machine shop practice & heavy machinery erection in shop & field, especially nonferrous smelter, crushing & cement making equipment. Lic. Prof. Engineer. Interested in position of plant engineer or similar assignment. PW-2523, Engineering News-Record.

PROFESSIONAL ENGINEER N. Y. State A.B. & C.E. Degree; Age 33, family. 2 yrs. design & construction—sanitary; 4 yrs. teaching—mechanics, structural Design, R.C., Surveying in leading Eastern College. Desires research, development or construction planning position on Eastern seaboard. Available Feb. PW-2513, Engineering News-Record.

STRUCTURAL-ENGINEER, age 36, graduate, licensed Washington State. Eleven years experience—all types of reinforced concrete, steel and timber structures. PW-2478, Engineering News-Record.

WORK WANTED

Small Group of Structural
designers and draftsmen available. Experienced in steel and concrete bridges and foundations. WW-2353, Engineering News-Record.

BUSINESS OPPORTUNITY

Established Engineering Business
profitable and long established Civil Engineering and Surveying practice in suburb of New York City. Offering includes owner's house and complete record of 35 years operation. Owner, wishing to retire, will make terms for payment over period of time. BO-2537, Engineering News-Record.

MANUFACTURERS REPRESENTATIVE

Available

Gentleman with 26 years experience in field sales, director of sales and management, 21 years of which was with one Company, 13 years of the latter was New England District Manager for large equipment manufacturer desires connection with one or two reputable Manufacturers of quality products to represent them in States of New Hampshire and Vermont. Capable of District Sales Promotion. Fully equipped with necessary transportation etc.

RA-2560, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

AVAILABLE

Services of Architectural Firm practicing in San Francisco for 25 years. Available for correspondent or resident representative for private firms having Defense Building Contracts on West Coast. Office experienced in Public building and Government paper work. Professional record and references on request.

RA-2543, Engineering News-Record
68 Post St., San Francisco 4, Calif.

Auction Advertising—Page 84, Wanted Advertising—Page 87.

Permanent Positions Open to ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2417, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

LIGHTING ENGINEER

Experienced lighting engineer, capable design, selection and application of lighting for generating plants, electric substations, industrial plants and office buildings. Applicant should be qualified or interested in training for handling of all technical problems related to lighting engineering. Location, New York City. Please furnish complete information including age, education and experience record.

P-2554, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

MATERIALS ENGINEER

Permanent position with Sound Company

Civil or chemical engineering degree required. Must be able to pass P.E. exams. Must have intimate knowledge concrete materials, mix design and control. Side knowledge soils, asphalt or steel fabrication helpful.

$4,500—$6,000
Depending on background

Location East Coast. Give complete information in first letter.

P-2484, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DESIGNERS and DRAFTSMEN

Permanent positions available with long established utility for men exp. in reinforced concrete, electrical, heating and piping. 37½ hrs, 5 days. All employee benefits. Location—Phila.

American Water Works Service Co.
121 South Broad St. Philadelphia 7, Pa.

HYDRO-CONSTRUCTION ENGINEERS

Hydro-Construction Engineers with 10 to 15 years experience on hydro-electric power plant construction, wanted by large engineering and construction organization. Also, position available for Assistant Hydro-Construction Engineer. College graduates preferred. Location Pacific Northwest. Submit resume of experience; salary desired, and date available.

P-2555, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ENGINEERS

Chemical - Mechanical - Piping - Process

Long term openings in permanent offices located at Cleveland, Ohio and Frederick, Maryland offering good salary plus overtime (forty eight hour week) for qualified Engineers, Group Leaders and Designers experienced in one or more of the following phases of industrial plant design:

Process Piping	Plumbing	Heating and Ventilation
Instrumentation	Tanks and Vessels	Refrigeration
Process Equipment Layout	Boiler Houses	Sprinklers
Packaging	Plant Layout	Water Treatment
Air Conditioning	Conveyors	

Limited number of openings for Estimators experienced in Mechanical and Chemical installations as well as building construction.
Also have a number of openings in our Cincinnati and New York City offices for similar type personnel.

Excellent working conditions with paid vacations, sick leave plan and participating Group Insurance Program.
Please submit complete resume stating experience, education, salary required and date available to:

The H. K. FERGUSON COMPANY
Engineers and Builders
FERGUSON BUILDING CLEVELAND 14, OHIO

CONSTRUCTION SUPERINTENDENTS

Large Utility Company on East Coast wants Construction Superintendents to assume complete field supervision of construction of large modern steam electric generating stations. Graduate engineers preferred. Applicants must have recent experience, and be familiar with modern power plant equipment and methods. A long range expansion program offers excellent opportunity for the future.

Write giving full particulars of education, experience and salary expected to

P-2477, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ESTIMATOR

Permanent position for a man approximately 35 years old with large Pittsburgh General Contracting firm. Must be thoroughly experienced in Commercial, Industrial, and Institutional building construction. Equal emphasis is placed on pricing as well as quantity takeoff. Salary limited only by applicant's ability and experience. Submit information stating experience, education, age, and availability. Replies confidential.

P-2153, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

YOUNG ENGINEERS

Architectural, Civil or Mechanical

Inquiries are invited from recent engineering graduates in the above fields, with or without experience, who feel that their interest lies in PROFESSIONAL SELLING.

We are a medium size, nationally known manufacturer of fabricated steel building products, and offer a one-year training program in Chicago to equip you to sell to Contractors, Architects and Engineers on straight salary.

Please write fully, enclosing recent photo, if possible.

P-2550, Engineering News-Record
520 North Michigan Ave., Chicago 11, Ill.

DESIGNERS

We need men with experience as:

Structural Designers
Concrete Designers
Electrical Designers
Piping Designers
Checkers

Men should have experience in Blast Furnaces, Steel Mill, Oil Refinery or other Heavy Structural Design.

Positions available in our offices at Cleveland, Ohio and Union, New Jersey.

We pay among highest rates plus annual profit-sharing bonus.

Our continuous expansion and growth offers many fine future opportunities.

WRITE.

ARTHUR G. McKEE & Co.
2300 Chester Ave., Cleveland 1, Ohio

CORROSION ENGINEERS

Corrosion Engineers with minimum of three or four years experience in corrosion investigations and design of cathodic protection on pipe lines and lead cables in country and city networks. Must be graduate electrical engineer (or equivalent.) Work involves extensive travel, with headquarters in New York City. Only applicants with above qualifications will be considered. Give full details of education and experience, and references, in application.

P-2533, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

Pursuant to An Order By the Owner, We Will Sell at . . .

Public Auction

WEDNESDAY, DECEMBER 12,

Starting at 10 A. M. (Rain or Shine)

PIPE LINE
CONSTRUCTION EQUIPMENT

Consisting Of

Tractors	Ditching Machines
Welding Machines	Compressors
Back Hoes	Dope Pots
Trucks—Trailers	Cleaning Machines
Pumps	Pipe Line Tools

Located at

3601 N. SYLVANIA STREET, FORT WORTH, TEXAS

Inspection from December 4, to date of Sale—

Ask for E. A. Bell

Send for Illustrated Folder to:

HETZ AUCTION SALES

P. O. Box 4187, Fort Worth, Texas Phone Valley-6541

MIXERMOBILE

2 Cubic Yard Capacity

Used only on one job

EXCELLENT CONDITION

HODGE & HAMMOND, INC.

720 Garrison Ave. New York 59, N. Y.

Phone: Kilpatrick 2-2400

CRANE BOOMS

Save 8% to 10% on booms fabricated in our plant for any make crane.

Delivery — 1 to 3 weeks

THE DEL-STRAT CORP.

Box 195 Delaware, Ohio

Ph. 9029-Delaware

FOR SALE

Aggregate Handling & Production Equipment

Hammermills and Impactors
2 & 3 Deck Vibratory Screens
18", 24" & 30" Conveyor Belts
Pan, Apron & Vane Feeders
30" Gyratory Superior McCully Crusher
12 Cubic Yard Rear Dump Euclid Trucks
24 Cubic Yard Side Dump Maxi Trucks
802 & 1201 Lima Shovel & Dragline Combinations
Aggregate Bins, Refrigeration Units
Core, Calyx & Wagon Drills, Jackhammers

Construction Equipment

Colby Double Cantilever Crane
Cement Unloader
Penstock Handling & Fabrication Equipment
Shop & Woodworking Equipment

Many other Items

OZARK DAM CONSTRUCTORS
FLIPPIN MATERIALS COMPANY

MOUNTAIN HOME, ARK.

QUICK CASH FOR YOUR IDLE EQUIPMENT!

SOLD AT AUCTION!

Let us sell your idle equipment to an **EXPORTER • DEALER • CONTRACTOR** *who needs it now . . .* and is willing to pay a top price! Get quick cash to meet your obligations.

$1,500,000 worth of heavy construction equipment was recently sold by us in a gigantic sale at the Minn. State Fair Grounds at "top dollar" prices.

AUCTIONEERS • LIQUIDATORS

ROSS & ROSS

BRidgeport 8766

101 FIRST AVE. N. • MPLS., MINN.

USED DIESEL BOATS

4—110' Ex-Subchasers
1—104' A.C.R. Boat
1—115' Steel Tug
1— 45' Steel Tug
1— 31' Work Boat
1— 30' Pusher Tug
1— 75' C.G.C. Wood Hull

NEW BOATS

1— 45' . . . . 1—55' Tug
1—42'6" Tow Boat
1— 30' Water Taxi
1— 38' Water Taxi

Equitable Equipment Company, Inc.

410 Camp Street New Orleans, Louisiana

FOR SALE

2 LaPlant-Choate C104 Scrapers, 25-Yd Struck—Good Condition
1 TD18 Tractor—Good Condition

SWORDS-McDOUGAL CO.

1300 N. Adams St. Peoria, Illinois

Phone 3-3642

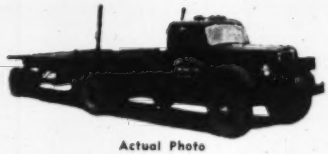
Shovel Front - Real Bargain

P & H Shovel front, Model 455A; 1-yard; complete; new, unused. Price f.o.b. Houston $985.00.

GEORGE CONSOLIDATED

7225 Culmore Street Houston, Texas

For Sale! $1,000,000 worth of Equipment!

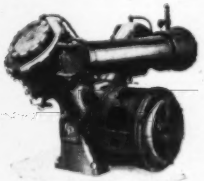


Actual Photo

AUTOMOBILES & TRUCKS

1—**Mack Chassis,** Model EHX, 1948, 146" W.B. Deluxe cab.
1—**Mack** 24' flat bed trailer
2—**Chevrolet** ¾ ton, 1948 pick-up
2—**Ford** ¾ ton, 1948 pick-up
3—**Ford** ½ ton, 1947 pick-up
1—**Ford** 1½ ton, 1949 Stake Body 158" w.b.
1—**Chevrolet** ½ ton, 1947 pick-up

BLACKSMITH SHOP EQUIPMENT
Complete heating, forging, hof milling and bit and tool sharpening shop.



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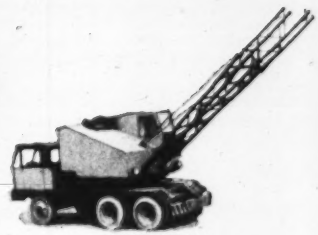
COMPRESSORS
Stationary & Portable

2—**Portable Air Compressors,** cbt. Pneu. 500 cfm, 2 stage with Caterpillar D-13000 Diesel. 4 Pneumatic Tires, mounted. 1947-48.
3—**Stationary Comp.** C.P. Type YCM, 2 stage G.E. Syn. 100 hp, 440v, 60 cy., 3 ph. motor, dir. con. 595 cfm. with exciter, and starting panel.
3—**Stationary Comp.** C.P. Type YCM, 2 stage G.E. Syn. 125 hp, 440 v., 60 cy., 3 ph., motor, direct con. 686 cfm with exciter and starting panel.
4—**Stationary Comp.** C.P. Type YCM, 2 stage G.E. Syn. 150 hp, 440 v., 60 cy., 3 ph., motor, dir. con. 774 cfm with exciter and starting panel.

Assorted aftercoolers, mufflers, receivers, instruments, etc.

CONCRETING EQUIPMENT

1—**Pumpcrete**—Rex—Model 200.
1—**Pumpcrete**—Rex—Model 160.
1—**Rex Pugmill Remixer.**
16—**Jaeger Air Operated Agitators** 4 cu. yd. 15 hp Sullivan motors.
1—**Concrete conveyor,** Lippman 24" x 43' lattice frame with belt scraper.
2—**Union Iron Wks. Grout Mixers** Model 7100 7 cu. ft. psi ejecting pressure.
1—**Ransome Concrete**—Model 16-s with LeRoi XRP Gasoline Engine, Power Loader, disch., vibrator, water measuring tank, 2 pneu. wheels.
1—**Mortar Mixer—Lansing,** Model 3½T Cushman Club Engine.
2—**Cement Gun Co. guns,** Type N-1.
2—**Syntron Vibrators,** Type V55.



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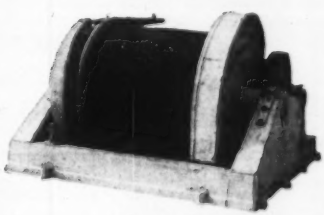
CRANES AND TRACTORS

1—**Lorain L-820 Crawler Combination Crane,** with shovel front & 2 cu. yd. bucket, Pettibone-Mulliken 2 cu. yd. dragline—Ser. 1868. Lighting plant. 70 Ton cap. and misc. equip. Powered by Waukesha 6WAKD Diesel. Excellent Condition.
1—**Lorain MC414 "Moto Crane"**—20 Ton cap. 10 wheel pneumatic powered with Waukesha 6MZA (cranes and Waukesha 6MRKR (trucks) engines. 20' boom with extensions. Serial #18,817. Excellent Condition.
2—**Lorain TL-20** "Moto-Crane" 10 wheel pneumatic powered with G.M. 271 Diesel, 30' boom, outriggers suitable for crane or clam-shell work. Cap. 6½ ton. Truck powered by G.M. 271 Diesel. Ser. Nos. 16972-17528. Excellent Condition.
3—**Allis Chalmers HD-5 Tractors** with Gar Wood Hydraulic Bulldozer equipment. G.M. Diesel Engine, Electric Start. Ser. Nos. HD5A8603-HD5A2606-HD5A6386.



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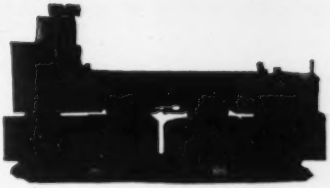
HOISTS

1—**Hoist, Mine**—Lidgerwood with Caterpillar Diesel D13000 Power Unit—6 cylinder—5¾" Bore—128 H.P. Drum 54" x 30"—6⅛" shaft 2¾" flange. Estimated capacity—550 FPM on first layer of ¾" rope, line pull —5,000 to 6,000 lbs. with J. S. Mundy Co. quadrant control. Serial No.—Hoist—None, Power Unit 4827720.
1—**Hoist, Ottumwa,** Serial No. 4063, 48" dia. x 48" 5½" shaft, Rope speed 470.5 RPM—grooved for 1" wire rope, Westinghouse Reversing Drum Controller—Type R28V, Serial 405377 G.E. CR-9516 Thruster Brake, with Westinghouse Induction Constant Speed, Type CW, Style LA 4029, 440 volts, 200 H.P., 1750 RPM 3 ph. 60 cycle, 209 amps. per ring 431 amps. between rings. Serial No. 871-C.
1—**Hoist, Ottumwa,** Serial No. 4058, 48" dia. x 69" grooved for 1" rope—7 ⅛" dia. shaft.—Rope speed 226 FPM—Cage speed 113 FPM, with General Electric Induction Motor, Model No. 6B6320, 150 H.P. 440 Volts, 3 phase, 60 cy. 195 amps., Type MT-C3562-12-150-600, form BL—full load speed 575 RPM—secondary amperage—194—Secondary volts—371, Serial No. 5167102 Westinghouse Reversing Drum Controller Type R28V, Serial 405402.



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8. **Lincoln Arc Welders Model SAE 200 Serial Nos. A 182986, A 185150, A 211223, A 211224, A 215261, A 215217, A 218451, A 217388.**
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2. **Westinghouse 300 amp AC Welders Style 026264 Serial Nos. 2109608 and 2329937.**

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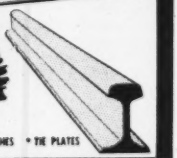

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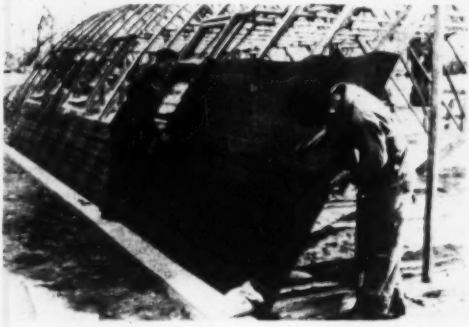


New hut type structure for temporary construction

Low cost, non-critical materials (usually obtainable locally), are used in a new type temporary structure with many possible applications. Known as Patscafco Huts, these new structures, because of their parabolic contour, are not unlike Quonset huts in appearance, but there the coincidence ends.

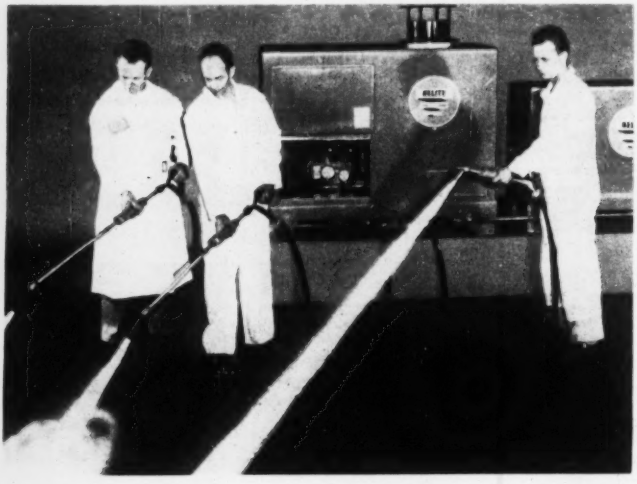
Concrete structures of this type are designed to satisfy requirements for temporary housing and equipment shelters. They are said to be fireproof, vermin resistant and unaffected by rain, wind or other damaging elements. The only items that must be shipped from a manufacturing source are the removable rib forms, form fabric and wire mesh. Rolling tubular scaffolds are optional for speedier erection. Other materials are generally obtainable locally.

The huts have been suggested for use as temporary shelter construction to house troops and civilians, as well as weapons, machinery, equipment and supplies. By saving critical steel they will justify their use in many theatres of operation.

A 24 x 48-ft. standard Patscafco hut calls for 14 cu yd of sand, 5 cu yd of gravel and 100 bags of cement—all of which are normally obtainable close to any point of erection. Other essentials are 85 board feet of nailing strips, 2,300 sq ft of form fabric (bituminous paper) in rolls 3 ft wide. Seventeen sections of removable, reusable rib forms complete the material equipment list.

The arch shell consists of 1½ in. of cement plaster reinforced with wire mesh. This wire is attached to the water-proof bituminous paper which acts as a form and later provides added protection against insects and vermin, according to the manufacturer. During erection, the paper is supported on removable steel pipe supports, spaced on 3-ft centers. The paper is stretched over wood-nailing strips in turn bolted to the pipe supports. When the cement plaster is added in two coats, the paper sags approximately 2½ in. between the supporting forms, making a stronger parabolic surface.

The end bulkheads are made up of 2x3 in. studs on the outside of which the bituminous paper, wire mesh and one inch of cement plaster is applied. The entire hut rests on a concrete foundation, and concrete floors are optional. They can be constructed to any length by repeated use of the removable rib forms. PATENT SCAFFOLDING CO., 38-21 12th STREET, LONG ISLAND CITY 1, N. Y.



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(Continued on page 95)

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Our catalog L-50 illustrates and describes the Limitorque Valve operators. Write for a copy on your Business Letterhead.

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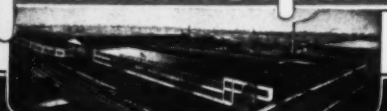

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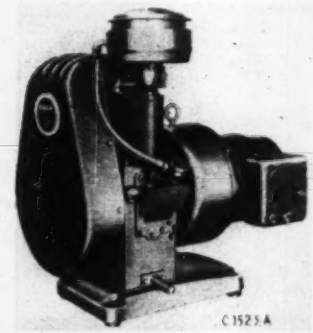
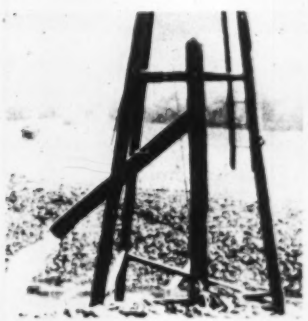


New 3,000-watt diesel electric plant

Here is a new 3,000-watt diesel electric plant, powered by an air-cooled full-diesel Onan engine. Push-switch control for electric cranking, manual compression release, and an electrically heated glow-plug for cold weather starting are provided. The manufacturer says that only 0.155 gallon of low-cost furnace oil is consumed per kilowatt hour at full rated load. It generates 115-volt, 60-cycle, single-phase current. Other AC models available in single-phase produce 230 volts and 115/230 volts. A 32-volt battery charging model can also be supplied. All models have ample overload protection. D. W. Onan & Sons, Inc., University Avenue S.E. at 25th, Minneapolis 14, Minnesota.



Plastic pipe on mine bores

On a recent installation at Wilkes-Barre, the Lehigh Valley Coal Company installed 180 ft of 8-in. Carlon rigid pipe to transmit mine water from a pump to the surface at the rate of 800 gpm at 80 psi static head pressure.

The installation was completed in 5 hr, using 21-ft sections of pipe con-

(Continued on next page)

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nected by means of cemented slip sleeve fittings. The all-plastic discharge spout is shown above ejecting the water at a distance from the bore hole.

Carlon is light in weight (only ⅛ as much as steel) and can be handled quite easily. It is said to resist the chemical action of sulphurous waters, alkalies, metallic salts, and other corrosive wastes frequently encountered in mining. Further, it is said to minimize frictional loss and will not accumulate scale. Carlon Products Corporation, 10225 Meech Avenue, Cleveland 5, Ohio.

Unassisted measuring with hook and ring

This handy tape hook is designed for ready attachment to any Starrett ¼" or ⅜" wide steel tape, and when used, greatly facilitates unassisted measuring of long pipe, casings, steel sheets, lumber and similar materials. The hook is made from a brass casting with nickel plated finish, and the inner surface of the hook is serrated for a very secure grip. It is so designed that the end of the tape is exactly aligned with and takes the measurement from the inside of the hook. The ring provides a convenient finger hold at the end of the tape as well. The L. S. Starrett Company, Athol, Massachusetts.

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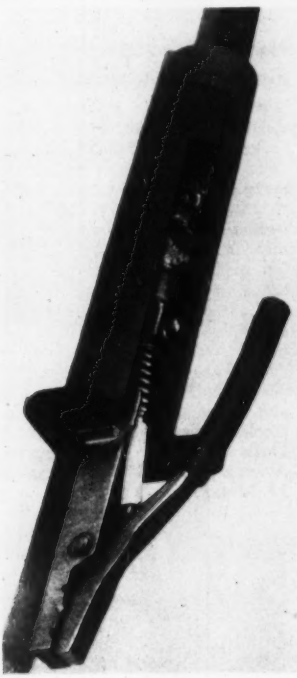

Electrode holder

Latest in the lines of Caddy welding accessories is this Type A electrode holder, featuring the welding cable connected by the Cadweld Process, available in 300 and 500-amp capacity.

Features include a spring assembly engineered to give uniform pressure when inserting or ejecting electrodes and a handguard that protects the welder's hand from spatter, arc and reflected heat. The manufacturer claims that its deeply grooved jaw has a maximum rod grip, and the enclosed coil spring assembly cannot be damaged by arcing or spatter. Erico Products, Inc., 2070 East 61st Place, Cleveland 3, Ohio.

(Continued on page 99)

ESCO 9-yard stripping dragline owned by J. Robert Bazley, Inc., working at Logan stripping near Mt. Carmel, Penn.

and still on the job

The *ESCO* dragline bucket shown at the left went into service in April 1945. As of September 30, 1948, it had— 1, 1951

Operated 7,143 hours. 12,813

Moved 1,411,915 yards of original material. 2,773,630

These corrected figures plus the maintenance cost per yard—.00785—bring the life history of this bucket up to date.

The bucket is still in service, stripping overburden in the anthracite region of Pennsylvania where digging conditions are notoriously tough.

ESCO dragline buckets will give you similarly outstanding performance. For detailed information on engineering and construction which make this possible, get a copy of *ESCO* catalog 188, "*ESCO* Dragline Buckets". Request it from your nearest *ESCO* representative, or mail the coupon.

ESCO stripping dragline bucket, with manganese steel parts shown in red.

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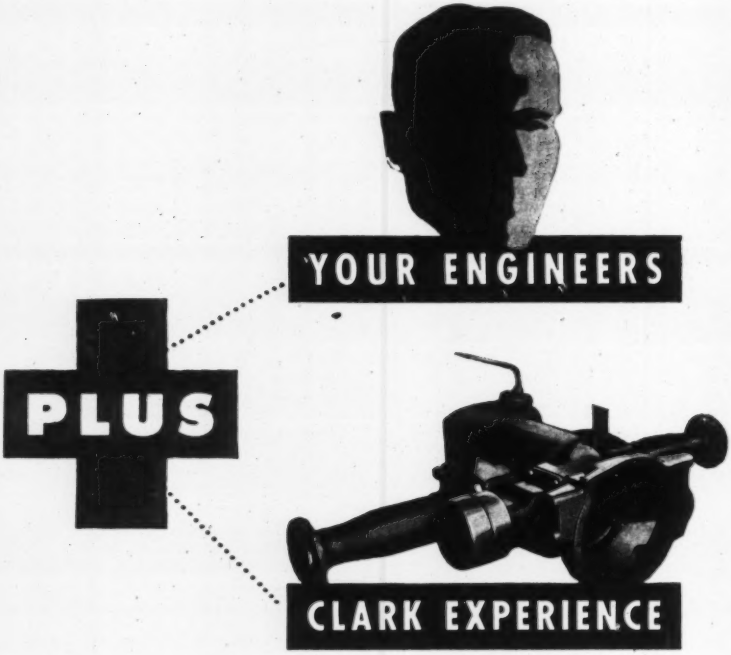

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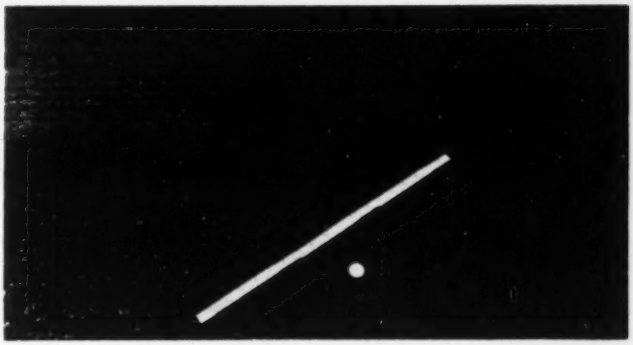
New products . . .

Super-fast drill

A new super-fast drill, said to last three times longer than the standard kind (and made at less cost) has been developed by a Westinghouse engineer. Specially designed for plastic materials, the new drill was created by substituting a straight, round shaft for the spiral-grooved shaft found in conventional drills. This permits the drill to penetrate thick plastic sections "with the ease of a hot knife passing through butter", whereas the spiral-shaped type must be fed slowly to prevent over-heating and withdrawn often for removal of the chips and waste from the drill flutes. Developed by Robert Double, it has a round shaft which is only 40 percent of the actual drill diameter. Another feature is a notched grind. By cutting two tiny notches in the drill tip, the chip is split into smaller sections which allows a less impeded chip flow and reduces friction. This, together with the air circulation caused by the rapidly revolving drill tip keeps the drill cool and helps expel the chips, according to the manufacturer. WESTINGHOUSE ELECTRIC CORPORATION, P. O. Box 1017, PITTSBURGH 30, PENNSYLVANIA.



Road patches in any weather without heating

A new long-lasting road material which, unlike present material used for patching, may be applied in any kind of weather, can be stockpiled in readily usable form throughout the winter and laid down without heating, using standard road-repair equipment. Known as Komac, the new road material is made by mixing special bituminous binders with aggregates to form a premix. This is pressed into chuck holes of streets or roads to make a long-lasting patch, according to the manufacturer.

The picture above shows a graphic comparison of the new Komac road material with other road material next to it. These patches were laid down and photographed after several months of traffic. Results are apparent with the Komac showing no bleeding or crossing. The circle represents a quarter laid on the road surface and the rule next to it shows size of the aggregate used in the new road material. Test roads were built and test patches installed during cold winter weather last year in Michigan, Wisconsin, Pennsylvania, New York and Massachusetts, with results indicating that the new material will outlast other bituminous pre-mixes. KOPPERS COMPANY, INC., PITTSBURGH 19, PA.

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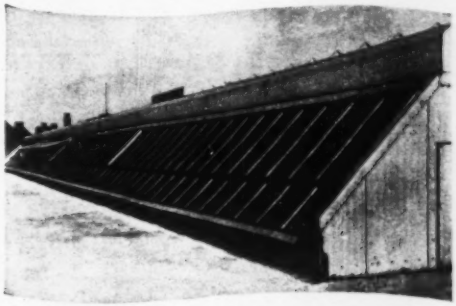

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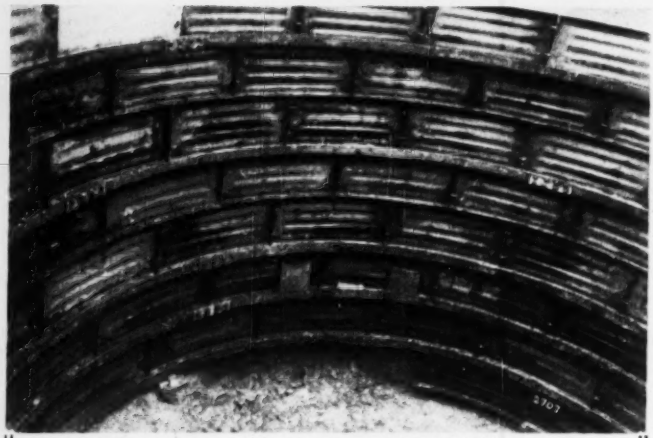

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MANUFACTURERS' PUBLICATIONS

Selection of engineering irons—This 28-page basic reference bulletin has been compiled primarily for design engineers and presents the many valuable characteristics of modern nickel cast irons and illustrates their broad acceptance throughout industry.

Over 50 illustrations indicate wide industrial usage in all sizes and shapes. Tables, charts and photomicrographs show how through the use of nickel, alone or in combination with other alloying elements, the engineering properties of cast iron can be controlled to meet almost any reasonable combination of service requirements. INTERNATIONAL NICKEL, DEPT. EZ, 67 WALL STREET, NEW YORK 5, N. Y.

Welding Alloys—A handy new chart of low temperature welding alloys, measuring 10x14 in., suitable for wall hanging or for purchasing department file, has been issued by Eutectic Corp. It contains detailed specifications on close to 200 metal-joining alloys including bonding temperatures, tensile strength, and recommended uses.

Major listings show proper welding alloys for use with cast iron, steel, stainless steel, copper, brass, bronze, nickel, and nickel alloys. Further subdivision of the information covers use of the alloys with various heating methods. EUTECTIC WELDING ALLOYS CORP., DEPT. P, 172ND ST. AND NORTHERN BLVD., FLUSHING, N. Y.

Three dimensional planning—This 80-page catalog contains the "whys" of 3-dimensional planning, explaining the functions and advantages of such planning in full detail, outlines and illustrates the Repro-Templet system of producing reproduction prints. In addition there is an itemized list of over 6,000 standard stock items—machine tools, material-handling equipment, shop equipment, office-planning equipment, etc. VISUAL PLANNING EQUIPMENT CO., INC., OAKMONT, PA.

Dempster Diggsters—This a 12-page booklet describing the front end loader and excavating machines made by Dempster. Among the basic and important mechanical features of big shovels which have been engineered into their Diggsters, are: simultaneous independent crowd and hoist, hydraulic crowding, hydraulic hoisting, variable crowd action at any dipper position, and interchangeable buckets.

Each of these features is described at length and highly illustrated throughout the book. Among the ac-

(Continued on page 103)

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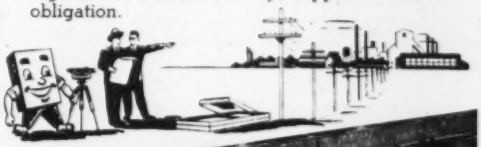

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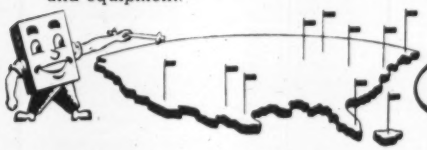

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Why not take a tip from Engineering Counsel, G. E. Carlstrand who, collaborating with the firm of Candela & Resnick, New York, conceived and developed the idea of using Junior Beams' versatility and adaptability to obtain greater simplicity of framework design? Write today for descriptive literature and engineering data on J&L Junior Beams, the modern lightweight structural.

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Manufacturers Publications . . .

cessories available for this machine are a bulldozer blade, crane boom extension, cab and winch. DEMPSTER BROS. INC., KNOXVILLE 17, TENN.

Vitrified clay liner plates—This 6-page folder on liner plate includes actual installation procedures, drawings and tables. Recommended procedures are included for lining pre-cast concrete or monolithic sewers where it is desirable to use a sulphur or an asphalt joint. Repair work and re-lining of existing sewers is also included. UNIVERSAL SEWER PIPE CORP., 1500 UNION COMMERCE BLDG., CLEVELAND 14, OHIO.

Incinerators—Plibrico is a recognized specialist in the incinerator field. This is their new 16-page catalog in which they describe every type and size of incinerator made by the company to meet the requirements of practically any type of industrial plant or institution.

Most unusual feature of their incinerators is the monolithic refractory lining which they claim eliminates the weak joints of ordinary fire brick. Tables are included listing model numbers with their capacities per hour, overall width, length, and height. PLIBRICO JOINTLESS FIREBRICK CO., 1800 KINGSBURY ST., CHICAGO 14, ILLINOIS.

Snowplows—The complete line of truck mounted snow plows manufactured by The Baker Mfg. Co. is described in their bulletin No. 1003, recently released. The bulletin describes the Baker V-Type, Reversible Tripping Blade, and One-Way Tripping Blade Plows in a complete range of sizes. The V-type and One-Way Trip Blades are produced in sizes for trucks of 1½ to 2 tons, 2½ to 3½ tons, 3½ to 5 tons, and 5 tons and up. Reversible trip blades are made for 1½ to 2 tons, medium capacity and heavy-duty trucks.

Two types of plow mountings are described—underslung type which attaches to side channels and axles of trucks; and front-end push type which is mounted to the front bumper and front end of a truck frame.

The lift and push frames have a hand-operated hydraulic lift pump mounted conveniently inside the cab. Full and semi-flare plates are available to increase height and plowing capacity of blade-type plows. The V-type and One-Way Plows have spring deflectors for increased windshield protection. THE BAKER MFG. CO., SPRINGFIELD ILLINOIS.

ADVERTISERS IN THIS ISSUE

Aetna Casualty & Surety Co., The 95
Albert Pipe Supply Co. 66
Atlantic Steel Corp. 74

Barco Mfg. Co. 6
Behlen Mfg. Co. 58
Bethlehem Steel Co. 1
Bucyrus-Erie Co. 52, 53

Cement Gun Company 60
Clark Equipment Co. General Div. 98
Commercial Shearing & Stamping Co. 100
Conners Steel Company 51
Cook Bros. Equipment Co. 96

Dearborn Chemical Co. 15
Déming Co., The 47

Economy Pumps, Inc. 42
Electric Steel Foundry 97

Faber-Castell Pencil Co., A. W. 61
Flexible Road Joint Machine Co. 56
Ford Motor Co. ..... 4th Cover
Fort Pitt Bridge Works 7

General Electric Company ..... 2nd Cover
Gulf Refining Co. 55
Gunite Concrete & Construction Co. 95
Gurley, W. & L. E. 4

Harnischfeger Corporation 22
Hayward Company 60
Hendrix Mfg. Co. 41
Hensley Equipment Co. 64
Howard Steel Co. 64

Ingalls Iron Works Co. 66
International Harvester Co. 16
Irvington Form & Tank Corp. 60

Jones & Laughlin Steel Corp. 102

Kerlow Steel Flooring Co. 49
Keuffel & Esser Co. 8, 9
Kinnear Mfg. Co. 70
Koppers Co., Wood Preserving Div. 54

LeTourneau, Inc., R. G. 5, 100
Leyman Mfg. Co. 14

Macomber, Inc. 20
Mamaux & Son, A. 64
Mayo Tunnel Equipment Co. 65
McGraw-Hill Book Co. 48
McKiernan-Terry Corp. 63
McKinney Drilling Co. 65
Morin Mfg. Co. 62
Motorola, Inc. 3

Omega Machine Co. 100
Open Steel Flooring Institute, Inc. 67

Pennsylvania Wire Glass Co. 99
Petersen Engineering Co. 49
Philadelphia Gear Works, Inc. 94
Phoenix Bridge Co. 49
Pittsburgh-Des Moines Steel Co. 70
Posey Iron Works, Inc. 11

Raymond Concrete Pile Co. ..... 3rd Cover
Robertson Co., H. H. 69
Rockford Clutch Div., Borg-Warner 95

Sauerman Bros., Inc. 49
Shell Oil Co. 12, 13
Sika Chemical Corp. 59
Smith-Blair, Inc. 73
Spencer, White & Prentis, Inc. 70
Sprague & Henwood, Inc. 60
Standard Dry Wall Products 36
Standard Steel Corp. 18
Superior Concrete Accessories 46

Thew Shovel Co., The 93
Timber Engineering Co. 10
Trailer Village, Inc. 64

Union Metal Mfg. Co. 35
United Steel Fabricators, Inc. 77
Universal Form Clamp Co. 101

Wild Surveying Instrument Supply Co. of Amer., Inc., Henry 2

Professional Services 89, 90, 91

SEARCHLIGHT SECTION
(Classified Advertising)

Employment
Positions Vacant 82, 83
Selling Opportunities Offered 82
Positions Wanted 82
Selling Opportunities Wanted 82

Educational
Schools 82

Business Opportunities
Offered 82

Notices
Auction 84
Proposal 79, 80, 81

Equipment
(Used or Surplus New)
For Rent 86, 89
For Sale 84, 89
Piling 88
Pipe 88
Rail 88
Surveying Instruments 86

Wanted
Equipment 87

ADVERTISERS INDEX 80

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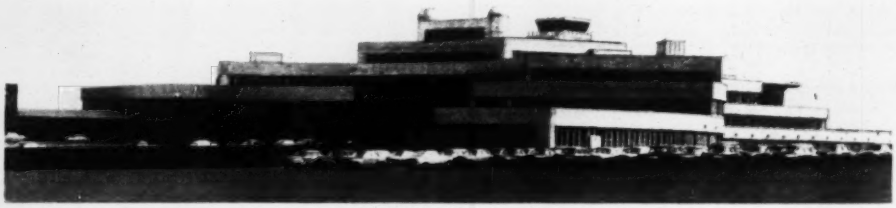

OUTSTANDING FEATURE of the new Greater Pittsburgh airport is the mammoth $9.5-million terminal building.

New $20-million super-terminal to handle Pittsburgh's air traffic

PITTSBURGH — Greater Pittsburgh airport, planned and promised for nearly seven years, looked this week as if it would finally start operation early next Spring. Located 15 miles from downtown Pittsburgh, the $20-million airfield would be one of the largest in the world and equipped to handle global traffic.

The most conservative cost quoted on the project is a rough $20 million, and future development will probably swell that to even greater proportion. The recently completed terminal building, alone, cost $9.5 million. And as it stands, it represents only a basic structure that will receive many additions.

Though the field has been in use for many years, mainly a military base, the terminal's opening will mark its first formal use as a commercial airline center. It will, in fact, eliminate all scheduled commercial airline traffic from the present base at Allegheny County airport, over twenty miles to the Southeast.

• **The beginning**—First plans for the new terminal were made in 1944 (ENR Dec. 12, 1944 p. 13). They called for an additional 400 acres of land to be added to the 1129 acres that formed the original Moon Township airbase. The expansion meant leveling the new area and required 3 million cu yd of fill to do the job.

In 1945, additional plans called for a finished airport that would be three times the area of New York's LaGuardia field. The plans called for lengthening two runways, both measuring 5,500 ft, to 9,600 and 6,300 ft (ENR Aug. 23, 1945 p. 73).

New work was scheduled to begin in 1946 with construction of the terminal building, filling, drainage and landscaping. A $3-million four mile highway was also planned (ENR Oct. 26, 1950 p. 35) to connect the airport with route 22-30 and the center of Pittsburgh.

• **Ready for work**—Now, after years of delay caused by material shortages and other negotiations, the long awaited airport is nearly ready for use. But the field will have only two runways to handle the traffic of five commercial airlines. One is 5,500 ft long and runs Northeast-Southwest, the other running Southeast-Northwest is 5,700 ft long. Future plans call for eight runways with the longest 9,600 ft in length.

For the present the field's outstanding feature will be the terminal building. It will house airline ticket and information offices; two passenger observation lounges; two public observation lounges; coffee shop; motion picture theater (capacity between 250 and 300), drug store, haberdashery, post office, barber and beauty shops and a branch bank.

There will be offices for operating personnel; a sky view dining room and a similar dining terrace; cafeteria-kitchen for 3,000 employees and a weather bureau station.

• **Hotel rooms**—One of the outstanding features of the new terminal will be the sixty-two hotel rooms provided for traveler convenience. Lack of such facilities has long been a criticism of air terminals. Friendship airport at Baltimore, Md., has a similar but less extensive arrangement.

Other facilities will be a 5,000-car parking area, a public garage and a large recreation center.

• **Building and dock**—The semi-circular main building has a radius of 230 ft and is 90 ft wide. A dock extends south and at right angles from the building and together they occupy about 500,000 sq ft. The dock is 600 ft long, 96 ft wide and has four floors.

Two freight elevators run from the field floor through the second floor, and two passenger elevators serve the same levels in the main building. In addition six escalators are located in the dock and terminal building.

A 33 ft bus drive also serves the dock and there are a number of additional truck drives and jeep drives entering at different angles.

At present, the four-lane Airport Parkway connecting with route 22-30 provides the main highway between the terminal and Pittsburgh. But the completed west section of the Penn-Lincoln Parkway will also link with the airport and supply a more efficient road to the city than the badly constructed and congested route 22-30.

• **Terminal features**—The air conditioned building has seven floors including the control tower. The distance from the field level to the tower is 92 ft. A basement occupies the area beneath the main building and the outer roadway. A space, 270 ft by 150 ft, in the basement serves as storage space for mail and cargo.

A garage and fire station on the field floor serve the areas allotted to the airlines. Each airline will have space on the field and the floor area above.

Another feature of the new airport is a completely underground airplane fueling system. One 10-inch and two eight-inch lines serve fuel pumps in the service pits.

The late Teodore Eicholz, county aviation architect, began the design of the terminal building. The detailed design was completed by Joseph Hoover, consulting architect.

RAYMOND

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THROUGH THE YEARS, the Gulf Oil Corporation has called in Raymond again and again to expand its facilities. For example:

At Gulf's marine terminal in Port Arthur, Texas, Raymond completed in 1931 a marginal wharf 25 feet wide and 1065 feet long. Later two similar sections were added to make the wharf more than a half mile long. Last year Raymond reconstructed the existing wharf with reinforced concrete and constructed a new wharf 25 feet wide along its entire face—doubling the dock area and permitting deeper dredging to accommodate large vessels. The job was completed well ahead of schedule and with a minimum of interference with Gulf's normal docking operations.

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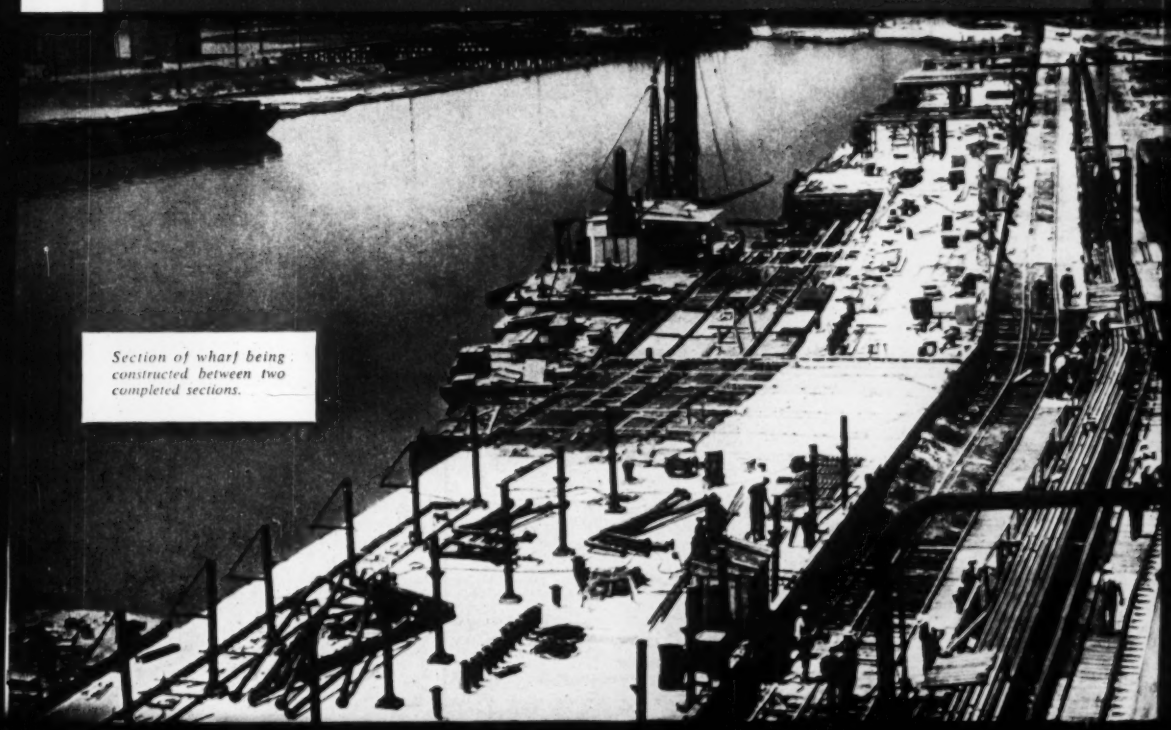

Section of wharf being constructed between two completed sections.

FLORIDA
Report No. 3870

FORD TRUCK ECONOMY RUN

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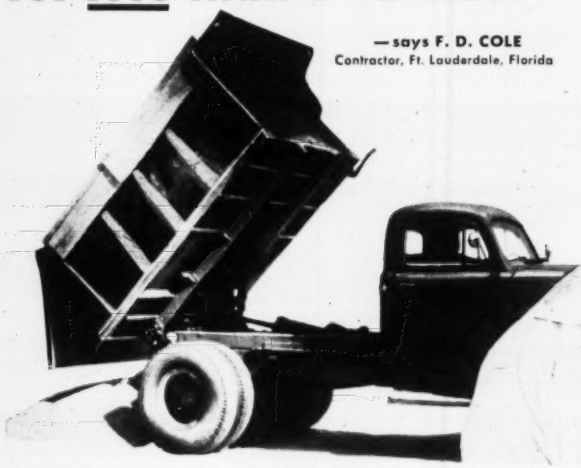
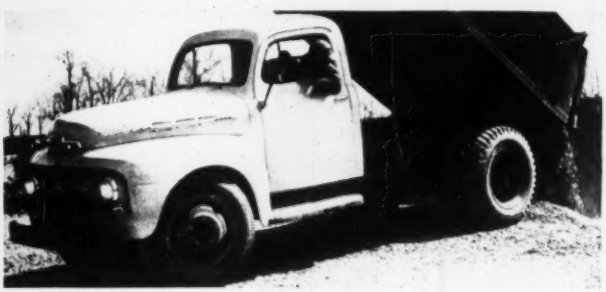
—says F. D. COLE
Contractor, Ft. Lauderdale, Florida



Contractor Cole's dump truck ran 77,900 miles in 16 months with no repairs except "points and plugs." He says, "Our average load is 8 yards of sand over all kinds of roads!"

During the nationwide Ford Economy Run, his Power Pilot equipped 1950 Ford F-8 BIG JOB traveled 27,216 miles, yet it cost only $1,315.67 for gas, oil, maintenance and repairs. That's a running cost of only 4.83¢ a mile!

Your Ford Dealer now has the big Economy Run "Final Results" book, with over 5,500 cost records from 48 states. Mr. F. D. Cole is listed on page 46. See the Book at your Ford Dealer's today!



This Ford F-6 Dump for '51 is also a great favorite with construction haulers. Power choice of 3 great engines . . . 100-h.p. V-8, 110-h.p. Big Six and 95-h.p. Six. Two fine cabs for more efficient driving, safety and convenience, the 5-STAR, or at added cost, the 5-STAR EXTRA Cab. Single speed rear axle standard, 2-speed axle also available (at extra cost), gives wide range of ratios for operating flexibility.

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